DISCLOSURE QUALITY DETERMINANTS AND CONSEQUENCES

KATMUN, NOORAISAH

DISCLOSURE QUALITY DETERMINANTS AND CONSEQUENCES

BY

NOORAISAH KATMUN/ KATMON

Bachelor of Accounting (University Putra Malaysia)

M.Sc. in Accounting (International Islamic University Malaysia)

A thesis submitted to Durham University in fulfilment of the requirements for the degree of Doctor of Philosophy

DURHAM UNIVERSITY

BUSINESS SCHOOL

SEPTEMBER 2012

Abstract

This study consists of three main projects covering (i) the relationship between disclosure quality and earnings management and (ii) the relationship between corporate governance and disclosure quality. Disclosure quality is measures using the IR Magazine Award, the forward looking information in the annual report, and the analyst forecast accuracy. Match-paired samples comprised of the winners and non-winners of the IR Magazine Award during the years from 2005-2008 were employed in this study. Simultaneity bias in all projects was remedied by the use of a simultaneous system of equation, which was estimated using two-stage least square regression (2SLS).

This study provides several interesting findings. With regard to the first project, disclosure quality and earnings management, it is shown that all disclosure quality proxies are consistently reported significant negative relationship with earnings management in the OLS regression. However, audit committee characteristics and board characteristics reveal insignificant relationship with earnings management, except audit committee meeting which reported positive association. Concerning the potential complementary and substitutive effect of internal governance and disclosure quality in deterring earnings management, result of the interaction terms revealed that there is a complementary relationship between audit committee quality and disclosure quality (measured using Investor Relation Magazine Award) in deterring earnings management. When disclosure quality and earnings management are treated as endogenous, this study reveals that there is a significant bi-directional relationship between disclosure quality and earnings management, highlighting that causality can run in both directions. This suggests that future research should control for disclosure quality factors when examining the impact of corporate governance and earnings management and that the potential simultaneity between disclosure quality and earnings management should be considered in future models.

With respect to the second project, corporate governance and disclosure quality, this study reveals that audit committee effectiveness, board meeting and board independent are significantly positively related to disclosure quality (measured using IR Magazine Award and the number of forward looking items in the annual report). With regard to the potential complementary or substitutive effect between board and audit committee characteristics in improving firm disclosure quality, this study reveal that there is a substitutive effect between board quality and audit quality in enhancing disclosure quality (measured using analyst forecast accuracy). If disclosure quality and board independence are treated as endogenous, there is a significant positive bi-directional relationship between them when disclosure quality is measured using the number of forward looking items. However, there is a negative bi-directional relationship and an insignificant bi-directional relationship shown when disclosure quality is measured using analyst forecast accuracy and the IR Magazine Award respectively.

Contents

List of Tables

Abbreviations

2SLS	Two-stage least square
ACCA	The Association of Chartered Certified Accountants
AFA	Analyst forecast accuracy
AIMR	Association for Investment Management Research
BOD	Board of directors
BR	Business review
CEO	Chief executive officer
CFO	Chief financial officer
CIFAR	Centre for Financial Analysis and Research
CPA	Certified public accountant
CRA	Canadian Reporting Award
CSR	Corporate Social Responsibility
DTA	Debt to asset
DTCAPITAL	Debt to total capital
DTCE	Debt to common equity
EM	Earnings management
ESOS	Employee share option scheme
FLSCORE	Forward looking score
FRRP	Financial Reporting Review Panel
GLS	Generalised least square
HKMA	Hong Kong Management Association
ICB	Industrial classification benchmark
IR	Investor relations
JONES	Jones Model
LIFO	Last in first out
LMCAP	Natural log of market capitalization
LTA	Lagged total assets
MIA	Malaysian Institute of Accountants
MICPA	Malaysian Institute of Certified Public Accountants
MIM	Malaysian Institute of Management
MJONES	Modified Jones Model
MVTB	Market-to-book value ratio
N6	Nudist N6
NACRA	National Annual Corporate Report Award

NDA	Non-discretionary accruals
OFR	Operating and financial review
OLS	Ordinary least square
PERFORM-ADJ	Performance-adjusted discretionary accrual
PPE	Property plant and equipment, gross
RE	Random effect
ROA	Return on assets
ROS	Return on sales
SEC	Securities exchange
UK	United Kingdom
US	United States
VIF	The variance inflation factor

Declaration

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree at this or any other university. I further declare that this thesis is solely based on my own research.

Nooraisah Katmun/Katmon

Statement of Copyright

Nooraisah Katmun/Katmon

Acknowledgement

The journey of life is always a mystery. It lies with the knowledge of God, the Most Wise and the Most Knowledgeable. With a humble heart, I am grateful to My Lord for every single unpaid breath that I take, for every single step for a properly working mind and for endless and countless blessings in my life.

I owe my humble gratitude to Allah for giving me such kind, helpful and knowledgeable supervisors like Professor Rob Dixon and Dr. Aly Salama to help me in my studies. Thank you very much for your monitoring and supervising efforts during every step of the PhD process.

With a humble heart, I am indebted to a number of scholars who have been directly or indirectly involved in the completion of my PhD thesis. I owe special thanks to Dr. Omar Al Farooque, Dr. Mahbub Zaman, Dr. Basil Al-Najjar, and Dr. Khaled Hussainey for long hours of discussion on my thesis. Your kindness and eagerness to share your knowledge really touches me to the core. Special thanks are also due to my internal and external examiners, Dr. Rebecca Stratling and Prof. Steve Toms, for their extensive and constructive comments that have significantly improved the thesis. Dr. Stratling in particular has generously contributed her ideas to the development of the thesis since the initial stages. Thanks also go to the editor and reviewers of the Contemporary Accounting Research Journal for their valuable comments and suggestions.

With deep appreciation, I am thankful to my husband, Halil, and my daughter, Nurjannah, for their unending support, unconditional love and understanding over the shortened weekends, truncated evenings and busy hours. I am also thankful to my dad and my late mother for their prayer and courage throughout my life. I am also thankful to my brothers, Haryadi, Muhammad Najib and Muhammad Rahmat for their prayer and encouragement, especially during hard times.

I am also grateful to a number of friends: Nazimah Hussain, Hamidah Mat, Rohaida Basiruddin, Prawat Benyasrisawat, Amiruddin Muhammad, Murya Habbash, Karuntarat Boonyawat, and Abdulla Dinga. According to God's will, He will reward all of you with something better.

Last but not least, I am thankful to the doctoral office staff and the IT Staff. Thank you so much for your help and technical support during my study.

Dedication

To my Lord
The ONE who created me
And shapes my life journey
And to whom I will return

And to respected men and women in my life:

(i) To an extraordinarily handsome, religious and motivational man with whom I share both the happiness and tribulation in my life
(ii) To men with golden hearts
(iii) To women who always convince me that God's help is near

1 Introduction

1.1 Objectives of the study

This thesis is comprised of two main projects. The first project examines the relationship between disclosure quality and earnings management, by controlling for internal governance mechanisms. Prior literature neglected governance mechanism when examining the link between disclosure quality and earnings management (e.g. Iatridis and Kadorinis, 2009; Jo and Kim, 2007; Lapointe-Antunes et al. 2006; Riahi and Arab, 2011). In addition, the first project also examines the potential complementary or substitutive relationship between internal governance and disclosure quality in deterring earnings management, and it also investigates the potential simultaneity relationship between disclosure quality and earnings management.[1]

In the second project, the present study complements previous research in this area in several ways. Firstly, it examines the impact of audit committee characteristics and board

[1] Although prior studies on internal governance mechanism and earnings management are quite extensive (refer to Chapter 3 for a literature review), studies examining the effect of disclosure quality on earnings management are lacking. Several prior studies share this concern, including Healy and Wahlen (1999), Lapointe-Antunes et al.(2006) and Jo and Kim (2007). Jo and Kim (2007, p. 587) state that "developing the theoretical framework that explains the relation between information disclosure and earnings management will enhance our understanding of why firms disclose in general". Lapointe-Antunes et al., (2006, p. 468) claim that the majority of prior literature concentrated on the effect of disclosure quality on "cost of capital, cost of debt, firm performance or analyst forecast accuracy"; there has been no research on disclosure quality and earnings management for a considerable length of time.

characteristics on disclosure quality. In this instance, corporate governance is expected to reduce information asymmetry, because the agent will provide a high quality of information to the principal when conflict of interest is low (Kanagaretnam et al., 2007). Secondly, it investigates the potential complementary or substitutive relationship of audit committees and boards of directors in improving disclosure quality, as highlighted by Brickley and Zimmerman (2010) and Brown et al., (2011) given that governance mechanisms are interlinked and share the same function in providing monitoring of firms, which reduces the agency cost. Thirdly, it takes into account the potential bi-directional relationship between board independence and disclosure quality by using a simultaneous system of equations. This is particularly important since prior literature offers inconclusive and conflicting findings with regard to the research on corporate governance and disclosure quality because of the endogeneity and causality issues that plagued in their studies (Brickley and Zimmerman, 2010; Armstrong et al., 2010; Brown et al., 2011).

1.2 General contributions

The present study may be of benefit to several groups of market participants:

1.2.1 Investors

This study will help investors with their decision-making processes. In line with Kent et al. (2010), the present study demonstrates that corporate governance does not always help to

reduce discretionary accruals. In this instance, for investors to rely on corporate governance in making investment decisions might be insufficient. The study suggests that, as well as focusing on corporate governance factors, investors should also concentrate on firms' disclosure quality, which is shown to be helpful in reducing managers' propensity to manipulate earnings.

1.2.2 Regulators

This study shows that high disclosure is associated with lower earnings management in firms with weak governance. In the light of these findings, regulators should focus more on how to improve firms' disclosure; more explicit rules on disclosure can deter earnings management better than corporate governance. Regulators should encourage firms to provide higher-quality disclosure, related to forward-looking information and capital market disclosure, given their importance to the financial analyst in predicting companies' future earnings. This study also indicates that current corporate governance practices by audit committees and boards of directors are unable to solve earnings management problems in firms; hence it suggests that regulators need to review their reliance on current corporate governance codes in the light of their costs and benefits.

1.2.3 Researchers

Researchers could benefit from this study since there is very little research in this area, especially from the UK perspective. The study provides empirical evidence on the potential of disclosure quality to reduce managers' propensity to manipulate earnings, by controlling for corporate governance variables. The complementary or substitutive relationship between disclosure and corporate governance to reduce earnings management is discussed; and the study identifies the factors that contribute to higher disclosure quality.

1.2.4 Corporations

This study concludes that high disclosure quality outperformed internal governance in mitigating earnings management. Therefore, it brings to the attention of accountants and corporations the fact that high disclosure quality will reduce managers tendency to manipulate earnings. It also stresses that high disclosure quality is beneficial to firms in improving earnings. Hence, corporations should enhance the quality of information to gain the trust of investors. Moreover, given that internal governance mechanisms are found to be weak in curbing earnings management, firms have to learn how to improve their governance processes. It is important to note that compliance to the code *per se* might fail to produce positive effects without efforts to ensure its effectiveness.

1.2.5 Academics

The findings from this research can be used to educate accounting students (the future accountants) about the importance of disclosure and its benefits, discouraging them from becoming involved in earnings management and instead promoting ethical reporting and transparency.

1.3 Definitions

1.3.1 Disclosure Quality

Disclosure can be defined as the release by a firm of information, which may be financial or non-financial; qualitative or quantitative; mandatory or voluntary; disseminated through formal or informal channels (Gibbins et al., 1990, p. 122). Although this definition of disclosure is general and ambiguous, in practice, defining disclosure quality is multifaceted and inconclusive. Gray and Skogsvik (2004, p. 793) explain that "voluntary disclosure supposedly provides information which goes beyond the requirements inherent in company law and the prevailing accounting standards". This definition is vague in the sense that the distinction between mandatory and voluntary disclosure is also subject to serious debate in literature on disclosure. Singhvi and Desai (1971) define disclosure quality as "completeness, accuracy and reliability" (p. 131). More recently Brown and Hillegeist (2003, p. 5) define disclosure quality as "the precision, timeliness, and quantity of information provided".

According to Kent and Stewart (2008, p. 651), "more extensive disclosures are likely to be more informative than brief disclosures and are, therefore, an indicator of greater transparency". In the same vein, based on the argument of Botosan (2004) that quantity and

quality are inseparable and hard to measure, Beretta and Bozzolan (2008, p. 335) claim that "the extent of disclosure (i.e. quantity) is an adequate measure of the quality of disclosure".

Although prior studies identify several important key words in describing disclosure quality (such as completeness, accuracy, reliability, precision, timeliness), it is argued that definitions are basically derived from the underlying theoretical assumptions used in research; so it is not necessarily true that "one size fits all". Different research methodologies, variable constructs and disclosure themes used in disclosure research lead to different definitions of disclosure. Cooke and Wallace (1989, p. 51) highlight the fact that identifying disclosure quality is highly subjective and does not share the same characteristics as defining, for example, the quality of a car. The complexity of describing disclosure quality is also echoed by Debreceny and Rahman (2005) who suggest that there is no perfect definition of disclosure quality. It is also supported by the claim of Beretta and Bozzolan (2008, p. 341) that disclosure quality is "impossible to define".[3] For the purpose of this study, disclosure quality is defined, following Singhvi and Desai (1971, p.131) as "completeness, accuracy and reliability". In protecting shareholder value, agency theory and signalling theory assume that a complete, accurate and reliable disclosure should be provided to reduce information asymmetry, solve agency problems and reduce agency cost.[4] This confirms that the definition of disclosure quality of Singhvi and Desai (1971) is in line with the aim of agency theory,

[3] Hassan and Marston (2010) point out that other forms of disclosure from internal sources (e.g. conference calls, interim reports, investor relations) and from external sources (e.g. analyst reports, media) are complementary to the annual reports provided by the firms.

[4] Most of the regulatory provisions related to disclosure and corporate governance are in line with the central aim of agency theory - to protect shareholder value (e.g. The UK Corporate Governance Code, Sarbanes Oxley Act, Rule 10b-5 of the 1934 Securities and Exchange).

maximising shareholders' value.

1.3.2 Earnings Management

Prior studies employ various definitions of earnings management. Healy and Wahlen (1999, p. 368), define earnings management as "…when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". The present study accepts and uses this definition as it is in line with the assumption of agency theory that earnings management is an agency cost detrimental to shareholders.

While Scott (2003, p. 369, as cited in Ronen and Yaari, 2008, p. 26) defines earnings management as "the choice by a manager of accounting policies so as to achieve specific objective[s]", Phillips et al. (2003, p. 493) state that earnings management "is accomplished through managerial discretion over accounting choices and operating cash flows". Yet another definition is given by Giroux (2004, p. 2): "…earnings management includes the whole spectrum, from conservative accounting through fraud, a huge range for accounting judgement, given the incentives of management".

Definitions of earnings management provided by prior literature mostly suggest that earnings management is harmful rather than beneficial. Ronen and Yaari (2008) classify definitions of earnings management as white, grey or black as in the table below:

Table 1-1: Alternative definitions of earnings management

White	Grey	Black
Earnings management is taking advantage of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flows	Earnings management is choosing an accounting treatment that is either opportunistic (maximising the utility of management only) or economically efficient	Earnings management is the practice of using tricks to misrepresent or reduce transparency of the financial reports
Ronen and Sadan (1981), Demski et al. (1984), Suh (1990), Demski (1998), Beneish (2001), Sankar and Subramanyam (2001)	Fields et al. (2001), Scott (2003)	Schipper (1989), Levitt (1998), Healy and Wahlen (1999), Tzur and Yaari (1999), Chtourou et al. (2001), Miller and Bahnson (2002)

Source (verbatim): Ronen and Yaari (2008, p. 25)

Healy and Wahlen (1999, p. 368) when defining earnings management argue that earnings management is performed to "mislead" the users of accounting information, while Ronen and Yaari (2008, p. 371-372) point out that earnings management is carried out by the means of accrual, which is the different between revenues and cash. The assumption that earnings management is an opportunistic behaviour of managers is another reason why the present study accepts the definition given by Healy and Wahlen (1999).

1.3.3 Corporate Governance

Most of the definitions of corporate governance supplied by prior literature are concerned with protecting the interests of shareholders and other stakeholders. Taking the stakeholder's viewpoint, Solomon (2007, p. 14) defines corporate governance "as the system of checks and

balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity", while Dahya et al. (1996, p. 71) describe corporate governance as ''the manner in which companies are controlled and in which those responsible for the direction of companies are accountable to the stakeholders of these companies''. In a similar vein, according to Donelly and Mulcahy (2008, p. 416), "[c]orporate governance is a set of control mechanisms that is specially designed to monitor and ratify managerial decisions, and to ensure the efficient operation of a corporation on behalf of its stakeholders."

Alternatively, in line with the focus on defending shareholders' interests, corporate governance can be defined as "… ways in which suppliers of finance to corporations assure themselves of getting a return on their investment" (Shleifer and Vishny, 1997, p. 737). Larker et al. (2007, p. 964) define corporate governance as "the set of mechanisms that influence the decisions made by managers when there is separation of ownership and control", while Armstrong et al. (2010) define it as "the subset of a firm's contracts that help align the actions and choices of managers with the interest of shareholders" (p. 181). The UK Corporate Governance Code of 2010 states that "The purpose of corporate governance is to facilitate effective, entrepreneurial and prudent management that can deliver the long term success of the company" (p. 1). The Code also defined corporate governance in line with the shareholders interest as (p. 2):

> Corporate governance is the system by which companies are directed and controlled. Boards of directors are responsible for the governance of their companies. The shareholders' role in governance is to appoint the directors and the auditors and to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting

> the company's strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to **shareholders** on their stewardship. The board's actions are subject to laws, regulations and the shareholders in general meeting (emphasised added).

Given that agency theory is fundamental to explaining corporate governance, in this setting, the present study defines corporate governance similar to the UK Corporate Governance Code 2010. Nevertheless, the present study also relies on Solomon (2007) who argues that shareholders' interests can also represent all stakeholders' interests. In other words, it is assumed that protecting shareholders' interests is universal and can be generalised to other stakeholders as well.

1.4 Structure of the thesis

The remainder of the thesis is organised as follows:

Chapter Two presents the theoretical framework used in literature on voluntary disclosure. The chapter discusses managers' opportunistic behaviour in manipulating earnings and distorting disclosure quality, as well as the potential remedies, in the light of agency theory., Other issues relevant to disclosure quality, earnings management and corporate governance are also presented in this chapter. Chapter Three focuses on the first project that looks at disclosure quality and earnings management. The literature review, hypothesis development and research methodology are described in detail. Chapter Four presents the findings from the statistical analysis.

With regard to the second project, the literature review, hypothesis development and research methodology for corporate governance and disclosure quality are covered in Chapter Five. The findings from project 2 are explained and discussed in Chapter Six.

The conclusions are presented in Chapter Seven, together with discussion of the limitations of the current work. Its contribution to the literature and suggestions for future work are elaborated in this chapter. An appendix supplies other, complementary information related to (i) analysis of residuals and (ii) normality, heteroskedasticity and multicollinearity tests for both the first and second projects as well as other related information.

2 Theoretical Framework on Disclosure Quality, Earnings Management and Corporate Governance

2.1 Introduction

This chapter focuses on the theoretical assumptions for (i) disclosure quality and earnings management and (ii) corporate governance and disclosure quality. The motivation for this study originates from evidence of the incentives for increased disclosure, such as increases in market liquidity and the cost of capital, in prior literature. However, firms cannot expect to enjoy all the benefits of increased disclosure if the information that they provide is flawed. From an agency theory perspective, disclosure is one of the monitoring agents that aim to mitigate the agency cost in the principal-agent relationship (Hope and Thomas, 2008; Jensen and Meckling, 1976). Given that the principal-agent relationship leads to an agency problem, information asymmetry and conflict of interest, managers have incentives to engage in earnings management and to provide a low quality of disclosure.

With regard to the problem of earnings management, the present study acknowledges the potential of internal governance mechanisms (e.g. Xie et al., 2003) and disclosure quality (Jo and Kim, 2007) in deterring earnings management. Concerning disclosure quality, prior literature also recognises the potential of internal governance mechanisms for improving

disclosure quality (e.g. Haniffa and Cooke, 2002; Eng and Mak, 2003; Nelson et al., 2010). Given that corporate governance mechanisms are costly to implement, it is important to understand whether they are complementary or substitutive in relation to each other. In addition, the potential endogeneity problems in disclosure quality, in earnings management, in board independence and in corporate performance will also considered in the current study.

2.2 Economic consequences and benefits of increased disclosure

High disclosure quality benefits firms in many ways. One of the economic consequences of increased disclosure is the ability to increase stock liquidity (e.g. Brown and Hillegeist, 2007; Brown et al., 2004). [5] In general, stock liquidity is viewed as important because it is associated with the current earnings and carries a predictive value in signalling future earnings (Sadka, 2011). Therefore, from management point of view, high stock liquidity is crucial because it signals that the firm is performing well in comparison to their peers. Moreover, high stock liquidity increases the stock price. Lang and Maffett (2011) document that liquidity uncertainty is decreased with disclosure quality. In a related vein, Ng (2011) reports an inverse relationship between disclosure transparency and liquidity risk (which is measured using liquidity beta). Extending the research of Lang and Maffett (2011) and Ng (2011), focusing on the global financial crisis during 2008-2009, Sadka (2011) finds that investors tend to buy or hold the shares of firms that provide high disclosure quality and to sell the

[5] The global financial crisis in 2008-2009 has reignited research on disclosure quality and market liquidity (e.g. Ng, 2011; Lang and Maffett, 2011 and Sadka, 2011). The 2008-2009 financial crisis lead turmoil in the financial institutions of the UK

shares of firms that provide low disclosure. Overall, much of prior literature documents that disclosure quality has a significant positive impact on share liquidity

Moreover, extensive studies have also suggested that high disclosure reduces the cost of capital. One strand of research has documented that there is a negative association between disclosure quality and the cost of capital (Kim and Shi, 2011; Botosan, 1997; Botosan and Plumlee, 2002; Lev, 1992; Diamond and Verrecchia, 1991). Using management earnings forecasts as a proxy for voluntary disclosure, Kim and Shi (2011) find that bad news forecasts increase the cost of capital, while good news forecasts cause no changes to the cost of capital. Kim and Shi (2011) suggest that the cost of capital does not respond to good news forecasts because investors presume that they do not provide credible information. A study by Francis et al. (2008) reveals an inverse relationship between voluntary disclosure (measured using the number of conference calls made by firms and management earnings forecasts) and the cost of capital; but this relationship disappears after they control for earnings quality. Using corporate social responsibility (CSR) information as a proxy for voluntary disclosure, Dhaliwal et al. (2009) report that firms with a greater CSR disclosure achieve a lower cost of capital than that of their counterparts. They also demonstrate that a high level of CSR disclosure increases institutional shareholder ownership, improves analyst coverage, enhances analyst forecast accuracy and reduces analyst forecast dispersion.

Another benefit of disclosure stems from its potential for improving a firm's share price. Lang and Lundholm (2000) report that firms that are more consistent in their disclosure policy

before security offerings are likely to be less vulnerable to the risk of price volatility during announcements when compared to firms with fluctuating trends in their disclosure policy. Lang and Lundholm (2000) also report that firms that tend to hype up their stock before security offerings will suffer continuous negative returns, while firms that maintain unwavering disclosure practices are more protected against this risk. Based on 35 listed pharmaceutical firms in the UK, Dedman et al. (2008) find that managerial disclosures on the product development process in the late stages have a greater impact than the type of earnings disclosure in respect to the share price. Jo and Kim (2007) demonstrate that firms with high disclosure frequency perform better following a security offering, whilst their counterparts are indirectly punished by the capital market by having a relatively lower stock return. These facts accord with the findings of Ruland et al. (1990) who highlight that issuing capital is a powerful motivation for managers to change their disclosure policy patterns.

Furthermore, prior literature suggests that a firm's efforts to develop sound disclosure policies will be rewarded by the capital market (e.g. Choi, 1973; Healy et al. 1999). They will also reduce the cost of debt (e.g. Sengupta, 1998); increase institutional ownership, analyst following and stock liquidity (e.g. Healy et al. 1999); improve their reputation (e.g. Espinosa and Trombetta, 2004), enhance their performance (e.g. Lang and Lundholm, 2000), avoid crisis and failure (e.g. Tadesse, 2006) and reduce uncertainty about future earnings (e.g. Lundholm and Myers, 2002). Healy and Palepu (2001) outline three main economic

consequences from increased disclosure: (i) increased liquidity,[6] (ii) reduced cost of capital and (iii) increased market intermediaries. Another strand of research demonstrates that high disclosure quality promotes lower information asymmetry between managers and shareholders (e.g. Petersen and Plenborg, 2006; Brown, Hillegeist and Lo, 2004; Coller and Yohn, 1997; Kim and Verrecchia, 1994; Diamond and Verrecchia, 1991). This subsequently increases the share price (Welker, 1995; Healy et al., 1999) and reduces earnings management (e.g. Jo and Kim, 2007; Lapointe-Antunes et al., 2006).

In a related vein, it has been argued that a high disclosure environment is associated with the stability of the capital market setting. Choi (1974, p. 15) states, "the consensus among some Americans is that increased disclosure helps to make the capital markets both operationally and allocationally efficient". Efficient capital markets will be a centre of attraction for investors and analysts, resulting in more confidence from market players to invest in the company. While Choi (1974) puts forward that high quality reporting is crucial in ensuring the proficiency of capital markets, Espinosa and Trombetta (2004) report that high disclosure helps to enhance a firm's reputation. Taken together, these provide evidence to support the view that firms with excellent disclosure will be more prominent in established market settings when compared to firms with a low quality of disclosure.

Despite the numerous benefits of disclosure, it is important to note that firms are not able to enjoy all of these benefits if they provide flawed information to the market. Because

[6] Lev (1988) points out that market liquidity can also be used as a proxy for information asymmetry. Hence, high disclosure quality has the potential to reduce information asymmetry, resulting in higher market liquidity.

disclosure is costly, the availability of a firm's information is largely dependent on managerial discretion, which itself may be subject to managers' personal aims and concern for personal benefit. Thus, it is important to understand why firms (sometimes) fail to provide optimal disclosure and what influences managers to provide flawed information.

2.3 Managerial disclosure decisions

From the management point of view, managers have incentives to provide high disclosure, to hide or withhold a firm's information or to manipulate the timing of a firm's disclosure. Based on the prior literature, Healy and Palepu (2001, p. 420-425) form six hypotheses to explain managerial disclosure decisions:

(a) *Capital market transactions hypothesis* – managers increase disclosure to reduce information asymmetry, which subsequently reduces the cost of capital and cost of debt.

(b) *Corporate control contest hypothesis* – managers disclose information to maintain career status and/or security in the company.

(c) *Stock compensation hypothesis* – managers with stock option based compensation tend to make disclosure that potentially increases the share price.

(d) *Litigation cost hypothesis* – (i) managers avoid delaying disclosure due to a fear of shareholder litigation and (ii) managers tend to conceal forward looking

information due to a fear of shareholder litigation in the case of the forward looking information being inaccurate. [7]

(e) *Management talent signalling hypothesis* - managerial disclosure on a firm's ability to "anticipate future changes in the firm's economic environment" will increase the firm's value.

(f) *Proprietary cost hypothesis* – the fear of disclosing information to competitors leads managers to conceal it.

Positive accounting theory explains that a manager's disclosure decision can be explained in terms of (i) the bonus plan hypothesis, (ii) the debt equity hypothesis and (iii) the political cost hypothesis (Watts and Zimmerman, 1986). With regard to the bonus plan hypothesis, managers with bonus plan compensation tend to choose accounting methods that can increase earnings, which is one of the benchmarks of a firm's performance. The debt equity hypothesis posits that firms with high debt tend to choose accounting methods that will increase earnings in order to mitigate high debt in the eyes of shareholders. Concerning the political cost hypothesis, firms that are under regulatory, government or political scrutiny

[7] Note that Rule 10-b5 of the 1934 Securities and Exchange Act in the US provides a legal provision for investors to sue firms that are involved in fraud by deception or by omission of disclosure information. However, it is widely known that shareholder litigation in the US is more pronounced than in the UK. Hence, the present study assumes that managers in the UK do not fear being sued when disclosing forward looking information. In other words, forward looking information in the UK is presumed to be more credible than in the US. Moreover, Athanasakou and Hussainey (2010) argue that forward looking information is qualitatitive in nature and that it, therefore, reduces the risk of shareholder litigation.

tend to choose income decreasing methods in order to avoid tax or reduce political cost pressures. [8]

With regard to the incentives for disclosure, Hermalin and Weisbach (2008, p. 1) explain,

> We argue that disclosure is a two-edged sword. On one side, disclosure of information permits principals to make better decisions. On the other, it can create or exacerbate agency problems: The release of information has the potential to harm agents (e.g. management) either through the actions it might induce the principals to take (e.g. dismiss the agent) or because they care about how they or the enterprise is perceived (e.g. the agents have career concerns or hold equity in the firm). Consequently, agents can be led to pursue actions that are not in the principals' interests.

Note that the motivation of managers to disclose information can be classified into two main categories. First, managerial disclosure decisions are made for the purpose of reducing information asymmetry between agent and principal, hence reducing the cost of capital (i.e. capital market transaction hypothesis).[9] Second, a manager's disclosure decisions are derived from various disclosure incentives that are substantially related to their personal benefit (i.e. Corporate control contest hypothesis, stock compensation hypothesis, litigation cost hypothesis). In this instance, managers will disclose information that is potentially beneficial to them and will hide information that not beneficial to them. Managerial disclosure may also instil managers with a tendency to become involved in earnings management. Forecasting disclosure is controversial with this sort of issue. While managers may release management earnings forecast as one form of voluntary disclosure, prior research also reveals that

[8] Meyer et al. (2000) reported that pharmaceutical industry tend to choose income decreasing method to reduce earnings after government announce the aim to reduce the cost of medicine.

[9] There is abundant literature suggesting a negative relationship between disclosure and information asymmetry (e.g. Welker, 1995; Brown et al., 2004; Brown and Hillegeist, 2007; Peterson and Plenborg, 2006; Cheng et al. 2006).

managers manipulate earnings to meet or beat management forecasts. The same bias occurs in the case of analyst forecasts. In particular, meeting or beating earnings forecasts is beneficial for a firm because it will be rewarded by the market, while failure to meet forecasts suggests that management is underperforming. [10] From another perspective, managers may also disclose more information in order to mitigate earnings management so that it becomes less obvious to shareholders.

Opportunistic managerial behaviour in disclosure choice is inherently influenced by shortcomings in the agency relationship. Specifically, the separation of ownership and control lead to agency problems (i.e., information asymmetry and conflict of interest) in the principal-agent relationship. The next section discusses how agency theory relates to agency problems.

2.4 Disclosure and agency theory

Jensen and Meckling (1976, p. 308) define the agency relationship as "a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent". In this context, the agent refers to the managers and the principals are the shareholders. In the principal-agent relationship, agents are responsible for making decisions on behalf of shareholders and they must exercise their duty to the best of their ability in such a way as to maximize the shareholders' wealth and to fulfil their expectations.

[10] Lang et al. (2011) and Lang and Marfett (2011) use discretionary earnings management as a proxy for disclosure transparency, hence it is not surprising to see overlapping motives for disclosure and earnings management.

The agency relationship contributes to the problems of conflict of interest and information asymmetry. Conflict of interest occurs when an agent acts to fulfil their own personal interest when making economic decisions while ignoring the implications for shareholders. In essence, information asymmetry represents the gap between the amount of information held by management and that held by market participants (Fields et al., 2001, p. 257). While managers work in the firm every day and are knowledgeable about all business transactions and affairs, stakeholders depend on periodic sources of information, such as the annual reports and interim reports that managers give to them to enable them to understand the firm's activities.[11] Therefore, the degree of information asymmetry will be higher if the quality of information is low and stakeholders will be poorly informed about the business.

Agency theory assumes that people in the market are rational. Managers, shareholders, creditors, analysts, governments and all other market players think rationally in making economic decisions tend to make decisions that will enhance their welfare. Therefore, managers tend to become involved in opportunistic behaviour (i.e. earnings management and flawed disclosure) that potentially increases a firm's agency cost.

Since agency relationships suffer from the problems of conflict of interest and information asymmetry, an optimal solution should be discovered to control such problems. Healy and Palepu (2001, p. 409) outline several solutions to the agency problem. First, appropriate

[11] Investors use firm's disclosure to monitor manager's behavior by scrutinising whether managerial decisions are optimal in improving firm's performance (Healy and Palepu, 2001, as cited in Hope and Thomas, 2008).

contractual incentives must be developed to reduce conflict of interests. Second, the monitoring function of the board of directors is effective in observing and controlling managerial behaviour on behalf of the shareholders. Third, capital market players, including financial analysts and rating agencies, are responsible to act as whistleblowers in the case of any wrongdoing. This implies that collaboration and effort in internal and external governance processes are important in solving agency problems.

Within agency theory, disclosure quality is viewed as one form of monitoring mechanism used by investors. It has the potential to reduce the gap of information asymmetry between an agent and the managers and may, therefore, be effective in lowering agency cost in the firms (e.g. Jensen and Meckling, 1976; Huang and Zhang, 2008; Junker, 2005). In other words, disclosure is recognised as one of the possible solutions to the agency problem (Eng and Mak, 2003). The role of the financial analyst is important as an intermediary, disseminating company information to both shareholders and stakeholders in order to ensure that lower information asymmetry is achieved. Well informed investors are expected to scrutinize firms on the basis of the information provided to them and this subsequently reduces the agency cost (Junker, 2005; Huang and Zhang, 2008).

Given that disclosure is effective in limiting agency cost (Huang and Zhang, 2008), agency theory has been widely used in the prior literature to explain variations in disclosure quality that are due to managerial disclosure decisions. Agency theory has also been previously employed in describing corporate governance and earnings management phenomena.

An example of this is provided by Eisenhardt (1989) who claims that, "…since information systems inform the principal about what the agent is actually doing , they are likely to curb agent opportunism because the agent will realize that he or she cannot deceive the principal" (Eisenhardt, 1989, p. 60). In other words, when disclosure quality is high, investors will be better informed about a company's activities, thus managers will be reluctant to manipulate earnings (Jo and Kim, 2007).

Eisenhardt (1989, p. 71) also concluded that agency theory can be used within the research studies "…that relate to information asymmetry (or deception) in cooperative situations". Previously, she put forward the idea that agency theory can provide a theoretical perspective for studies on the conflict of interest between agent and principal. In a similar vein, Fama and Jensen (1983) suggest that the board of directors has a role as one of the monitoring agents in aligning manager and shareholder interests. Given that the present study is designed to examine disclosure quality (which is associated with information asymmetry in principal-agent relationships), earnings management (which is about misleading information) and corporate governance (which mainly deals with how to reduce the conflict of interest in principal-agent relationship), agency theory is found to be the most relevant theory for the purposes of the study.

Although agency theory views disclosure as one of the mechanisms by which information asymmetry between managers and shareholders is reduced, Healy and Palepu (2001, p. 406)

point out that “corporate disclosure can also be directed to stakeholders other than investors”. In a related vein, Solomon (2007) argues that

> [T]heoretical frameworks suggesting that companies should be accountable only to their shareholders are not necessarily inconsistent with theoretical frameworks which champion stakeholder accountability. The reason underlying this argument is that shareholder’s interest can only be satisfied by taking account of stakeholder interest. (Solomon, 2007, p. 14).

This implies that, systems based on agency theory tend to protect the interests of both shareholder and stakeholder at the same time. A managerial disclosure decision not only offers lower information asymmetry to the shareholder in particular but also to other market players in general.

Table 2-1: Agency theory overview

Key idea	**Principal-agent relationship should reflect efficient organisation of information and risk-bearing costs**
Unit of Analysis	Contract between principal and agent
Human assumption	Self interest, bounded rationality, risk aversion
Organisational assumption	Partial goal conflict among participants, efficiency as the effectiveness criteria, information asymmetry between principal and agent
Information Assumption	Information as a purchasable commodity
Contracting Problems	Agency (moral hazard and adverse selection), risk sharing
Problems Domain	Relationships in which the principal and agent have partly differing goals and risk preferences (e.g. compensation, regulation, leadership, impression management, whistle-blowing, vertical integration, transfer pricing).

Source: Verbatim from Eisenhardt (1989, p. 59).

2.5 Managers' incentives to engage in earnings management

Agency theory views earnings management activity as a result of the misalignment of interest between agent and principal that ultimately leads to the agency cost (Davidson et al. 2004). The principal and agent relationship is surrounded by the problem of moral hazard (Ronen and Yaari, 2008). Most prior studies acknowledge that earnings management is opportunistic rather than beneficial (e.g. Siregar and Utama, 2008; Yu, 2008 Burgstahler and Dichev, 1997; Balsam et al., 2002; Yu, 2008).

Managers are motivated to manipulate earnings for a number of reasons. Prior research documents that managers were found to manipulate earnings in order to hype the stock price especially before initial public offerings (Friedlan, 1994) and prior to seasoned equity offerings (Jo and Kim, 2007; DuCharme et al., 2004; Teoh et al., 1998; Rangan, 1998). Furthermore, previous investigations have suggested that managers manage earnings in such a way as to

avoid reporting losses (Bustaghlar and Dichev, 1997; Degeorge et al., 1999; Charoenwong and Jiraporn, 2009) and to smooth earnings volatility (Cormier et al., 2000). It is also reported that managers manipulate earnings for personal benefit and remuneration, i.e. when an options grant is near (Baker et al., 2009), to avoid debt agreement violation (DeFond and Jiambalvo, 1994) and to influence contractual outcomes from import relief (Jones, 1991).

Prior literature shows that forecasting activities can also be a motive for earnings management (e.g. Kasznik, 1999; Hunton et al., 2006; Cormier and Martinez, 2006; Degeorge et al., 1999; Burgstahler and Eames 2003). Studies have shown that managers become involved in earnings manipulation in order to meet the earnings forecasts of financial analysts (e.g. Dhaliwal et al., 2004; Iatridis and Kadorinis, 2009). Managers have successfully met analyst forecasts by manipulating the effective tax rates (Dhaliwal et al., 2004) or the accruals (Iatridis and Kadorinis, 2009).

To date, numerous examples in the literature support the notion that earnings management is opportunistic (e.g. Jones, 1991; Teoh et al., 1999; Healy and Wahlen, 1999). Contrastingly, a smaller body of literature claims that earnings management is beneficial because it is not harmful to a firm's value (e.g. Jiraporn et al., 2008). Thus, it is crucial to identify the motives for earnings management behaviour by managers. According to a range of earnings management literature, common features of earnings management motives include (i) misleading users of accounting information or (ii) increasing a manager's personal benefit. Prior literature argues that inflated earnings potentially reduce the earnings informativeness,

impairing the earnings and stock price correlation. Given that the earnings are correlated to the share price (Su, 2003; Easton and Harris, 1991; Chan and Seow, 1996; Alford et al., 1993; Easton and Zmijewski, 1989), inflating earnings will result in an incremental increase in the share price (Healy and Wahlen, 1999). Consequently, investor's decision making is influenced by inaccurate earnings; stock price may be overvalued, resulting in the misallocation of resources in the capital market. Therefore, it is not surprising to find an abundance of literature that assumes that earnings management is detrimental. [12] Nonetheless, it is important to note that managers also consider cost and benefit trade-offs before engaging in earnings management (Fields et al. 2001).

Seeking to overcome the problem of earnings management, prior literature suggests that earnings management behaviour depends on the extent of disclosure quality (Jo and Kim, 2007; Riahi and Arab, 2011). Some studies (e.g., Xie et al. 2003; Kent et al. 2010) view internal corporate governance as a credible tool for deterring earnings management. In light of this, the present study assumes that disclosure has high potential as a monitoring mechanism for reducing earnings management, while at the same time controlling for the monitoring effects of a firm's internal governance practices.

[12] Some studies find that firms which alter discretionary accruals before security offerings eventually suffer a lower and abnormal stock return (e.g. Teoh et al.., 1998; Rangan, 1998) as well as being more vulnerable to lawsuits (e.g. DuCharme et al.., 2004).

2.5.1 Disclosure as a monitoring mechanism

Disclosure is one of the monitoring tools that are used by investors to develop an understanding of how managers manage resources and to judge a company's decisions. Disclosure bridges the gap of the information between agent and principal. Investors are not able to monitor managers' behaviour and performance without a firm's private information. Disclosure is one of the monitoring tools that control managers' opportunistic behaviour (Bushman and Smith, 2000). Hence, disclosure is effective in reducing agency cost. Investors need information from management so that they can monitor the firms and make connections between each managerial decision and its outcome (Healy and Palepu, 2001, as cited in Hope and Thomas, 2008, p. 616). Following on from the work of Jo and Kim (2007) and Lapointe-Antunes et al. (2006) the present study intends to examine the implications of disclosure quality in respect to deterring earnings management.

2.6 Managers' incentives to distort disclosure transparency

A manager's disclosure decision may be influenced by the intention to reduce information asymmetry. However, as previously discussed, managerial disclosure can also be influenced by personal motives. Various managerial incentives for disclosure might significantly impair the credibility of disclosure.[13] Furthermore, given that managers comprise a group of highly capable employees, they are supposed to be not only talented in running a company's operations but also highly skilled in manipulating disclosure information (Subrahmanyam,

[13] Section 1.3 of this chapter discuss in detail about the incentives of managers disclosure decision.

2005). Consequently, the credibility of increased disclosure is questionable (Healy and Palepu, 2001).

According to Subrahmanyam (2005), managers are able to channel their intellect (cognitive ability) towards successfully providing untrue or inaccurate information to users of accounting information. In his theoretical research, he suggested that such behaviour could also be identified by analysts with a correspondingly high intellect (cognitive ability). [14]

Due to imperfect market conditions, managers have incentives to trade-off the benefit and cost of voluntary disclosure (Healy and Palepu, 2001, p. 411). Heitzman et al. (2011) point out that all disclosure incentives are only related to voluntary disclosure because voluntary disclosure is subject to managerial cost benefit analysis, is immaterial in nature and is not compulsory. Therefore, the reliability of voluntary disclosure is an issue, given that it is subject to the manager's discretion and that it is largely influenced by various incentives (Healy and Palepu, 2001). As previously discussed above, a manager's disclosure decisions are not merely made to reduce information asymmetry, but are also influenced by considerations of specific personal benefits or outcomes. Healy and Palepu (2001) suggest that verification by market intermediaries (e.g. auditors and analysts) and the involvement of regulators are necessary to ensure that voluntary disclosure is credible.

[14] Subrahmanyam (2005) noted that high cost of searching information will occur by analyst if managers utilized their cognitive ability to provide misleading disclosure. Hence, he argued that the manipulated disclosure by managers will subsequently increase share liquidity, but at the expense of larger information asymmetry gap between managers and users of accounting information.

Prior studies suggest that a firm's disclosure can be improved through the practice of sound corporate governance (e.g. Nelson et al., 2010; Kent and Stewart, 2008). Healy and Palepu (2001) point out that the reliability of disclosure can be improved through the intervention of regulators and financial analysts[15]. Hence, in light of the argument that analysts may be useful in monitoring the credibility of a firm's disclosure, the present study relies on three disclosure quality proxies that are related to analysts: the IR Magazine Award and the quantity of forward looking information in the annual report as well as the accuracy of the analyst forecasts.

2.6.1 Mandatory and voluntary disclosure

The classification of mandatory and voluntary disclosure is controversial because the cut-off criteria for these two types of disclosure are subject to academic debate. In explaining mandatory and voluntary disclosure, Hassan and Marston (2010, p.7) point out that

> Mandatory disclosure is information revealed in the fulfilment of disclosure requirements of statute in the form of laws, professional regulations in the form of standards and the listing rules of stock exchanges. Voluntary disclosure is any information revealed in excess of mandatory disclosure. Also, voluntary disclosure can include disclosure recommended by an authoritative code or body such as the operating and financial review in the UK. In addition, disclosure can vary between firms with respect to timing (for example, annual reports vs. quarterly reports); items disclosed (for example, quantitative vs. qualitative information); and types of news (for example, good vs. bad news disclosures).

[15] Though Healy and Palepu (2001) opined that regulators and analyst roles are crucial in improving disclosure quality, it is also agreed that regulatory and legal provisions so far (probably) need to be reviewed because the they are not always helpful in enhancing disclosure credibility. Ronen and Yaari (2001) find that Rule 10-b-5 of the 1934 Securities and Exchange Act does not successful in preventing managers from providing untrue information.

The above statement is consistent with Iatridis and Kadorinis (2009), Marston and Shrives (1991) and Cheng et al. (2006), who note that mandatory disclosure requirements are essentially regulatory driven. According to Cheng et al. (2006, p. 34), "While a commitment to increased disclosure raises overall disclosure, the level of mandatory disclosure is still based on regulatory requirements and any disclosure above these requirements is subject to managerial discretion". Heitzman et al. (2010, p. 110) outline two important features of mandatory disclosure: (i) it is material for investors in making economic decisions and (ii) it is compulsory to disclose by the managers. Heitzman et al. (2010) further argue that the compulsory requirements of mandatory disclosure desensitise it from cost and benefit trade-offs and other incentives for managerial disclosure. In other words, all information that is immaterial and/or not disclosed under compulsory requirements may be connected to managerial discretion that is driven by cost and benefit analysis and largely depends on the motives for the managerial disclosure decision (Heitzman et al., 2010).

In the light of the above discussion, some other studies suggest that not all types of disclosure are effective in reducing the cost of capital. Bertomeu et al. (2011), for instance, report that mandatory disclosure is more effective than voluntary disclosure in reducing the cost of capital. Kothari et al. (2009) reveal that disclosures made via the business press reduce the cost of capital, stock volatility and the dispersion of analyst forecasts. Nevertheless, in their study, disclosures made by management and analysts are viewed as less credible, hence no significant association is found between the cost of capital and bad news or good news.

2.6.2 Good news vs. bad news

According to Aboody and Kasznik (2000), managers view good news as more beneficial to them than bad news. Thus, managers tend to delay bad news or to conceal it from the public.[16] This is supported by Hutton et al. (2003) who claim that bad news is potentially harmful to share prices although good news does not always significantly improve a firm's share price. Prior literature also proposes that bad news disclosures are helpful in adjusting overvalued share prices. Given that managers have an incentives to provide flawed information, it is important for the researcher to examine the impact of good news and bad news on the capital market.[17]

2.6.3 Corporate governance as a monitoring mechanism

A firm's governance attributes are supposed to be effective in enhancing the quality of earnings and their disclosure by acting as a monitoring mechanism. The managers' conflicts of interest are mitigated through governance attributes, which have the potential to control and monitor the board. Managers will be more inclined to provide credible disclosure and financial reporting when the interests of agents and shareholders are aligned (e.g. Maher and Andersson, 2000; Kanagaretnam et al., 2008; Watts and Zimmerman, 1986; Linck et al., 2008). With respect to disclosure quality and board characteristics, prior literature explains that

[16] In reality, managers tend to hide bad news such as losses and reductions in sales. In a recent accounting scandal involving Olympus (which was known to public during the end of 2011) it came to light that managers hid losses of approximately USD1.3 billion during the 1990s.

[17] The present study realizes the differentiation of the effects of both good news and bad news on the capital market. However, this topic is beyond the scope of the thesis. Moreover, the techniques that are used so far are still unable to accurately determine what is bad news or good news, given that the identification of both are highly subjective. This is worthy of exploration in future research.

disclosure transparency can be categorised as an external governance mechanism (Holm and Schøler, 2010), while board and audit committee characteristics fall under the category of internal governance (Brick et al., 2008; Brown et al., 2011).

Moreover, Brickley and Zimmerman (2010, p. 236) highlight the importance of both internal and external governance for understanding the incentives for managerial disclosure decisions:

> To better understand the incentives of the top-level decision makers, one must look beyond compensation policy and shareholder/ board monitoring. Multiple parties and mechanisms (including, auditors, regulators, credit rating agencies, stock analysts, courts, the media, monitoring by banks and other creditors, regulation, the market for corporate control, product market competition, and corporate policies relating to takeovers) influence the behaviour of the top-level decision makers in the corporation. Some of these mechanisms are complements, while others are substitutes.

2.6.4 Internal governance[18]

2.6.4.1 Board of directors

The central premise of corporate governance focuses on the affirmative duties of the board of directors in ensuring that all economic decisions are in the best interests of the shareholders (Monks and Minow, 2004, p. 195). Boards of directors play important roles in monitoring, in providing professional advice and in providing networking connections within a firm's governance process (Ronen and Yaari, 2008, p. 236; Adams and Ferreira, 2007; Raheja,

[18] Internal governance mechanisms are numerous, which includes board of directors, audit committee, compensation committee, internal control and others. However, the present study focuses on board of directors and audit committee given that both of them has been viewed as major components in the internal governance process.

2005). "Broadly speaking, the monitoring function requires directors to scrutinize management to guard against harmful behaviour, ranging from shirking to fraud" (Linck et al., 2008, p. 311). When conflict of interest is low, managerial disclosure is aimed at mitigating the problem of information asymmetry between internal and external parties.

2.6.4.2 Audit committee

The audit committee is viewed as one of the most important subcommittees in a company because it governs a firm's financial disclosures and financial affairs. [19] As such, the UK Corporate Governance Code sets out a specific provision code, drawn from the Higgs Report, with regard to audit committee governance practice. [20] With such criteria in place, it is expected that audit committee members can perform their duties effectively.

2.6.4.3 External governance

Brown et al. (2011) point out that external governance is comprised of (i) the financial analysts, (ii) the substantial shareholders and (iii) the auditors. External governance mechanisms are external parties that also provide direct or indirect monitoring. The present study acknowledges the potential contribution that is made by the external governance

[19] This is not intended to undermine the function of other subcommittees in a company. Each subcommittee in a firm has unique responsibilities in the firm's governance system. The UK Corporate Governance Code outlines the expected roles and function of each subcommittee in a company. The present study focuses on audit committees because their characteristics are highly correlated to the main themes of the study: disclosure quality and earnings management. Future research should consider the effect of other subcommittees (e.g. nomination, remuneration and internal control committees) on a firm's governance process.

[20] The Smith Report (2003) recommends that (i) all audit committees are composed entirely of independent directors, (ii) at least one member has financial expertise, (iii) committees are comprised of at least three members and (iv) committees meet not less than three times a year.

mechanisms listed above and has attempted to control for these components in the model. Detailed discussion is provided in the relevant chapters (i.e. Chapter Three and Chapter Five).

2.7 Corporate governance as monitoring tool to reduce information asymmetry and conflict of interest

On the one hand, corporate governance has been viewed as potentially effective in reducing information asymmetry and conflict of interest (e.g. Donelly and Mulcahy, 2008; Cerbioni and Parbonetti, 2007). Kanagaretnam et al. (2007) find that information asymmetry is negatively related to the percentage of independent directors on the board, the frequency of board meetings and board and officer ownership, signalling that sound governance practices improve the gap of information asymmetry between internal and external parties and consequently reduce the agency cost. Their finding is robust after considering the issue of endogeneity.

On the other hand, prior research also reveals that sound corporate governance fails to mitigate agency conflict (e.g. Lasfer, 2002; Dey, 2008). Dey (2008) documents that sound governance practices related to the board of directors and audit committee are significantly and positively associated with agency conflict. In the light of her findings, Dey (2008) concludes that sound corporate governance and agency conflict are complementary to each other. Thus, it is important to note that the ability of corporate governance to mitigate agency conflict and to reduce information asymmetry is unclear.

This discrepancy could exist because each corporate governance component contributes to the reduction in information asymmetry to a different extent (Klein et al., 2005). Holm and Schøler (2010) report that the importance of disclosure and board independence in reducing information asymmetry is predominantly determined based on the ownership structure and the environment in which the firm operates. Specifically, they document that disclosure transparency outperformed independent director presence in firms with exposure to the international market.

2.8 The complementary or substitutive links between corporate governance mechanisms

2.8.1 Disclosure and internal governance mechanisms: are they complementary or substitutive?[21]

As discussed in the previous section, both disclosure and corporate governance have potential predictive ability in respect to reducing managers' propensity to manipulate earnings. They share the same characteristics as monitoring tools when it comes to reducing agency problems, potentially reducing the agency cost. In other words, both corporate governance and disclosure quality is potentially useful in addressing the same problems in agency relationships. Nonetheless, because optimal disclosure is costly and hard to achieve (Hassan and Marston, 2010; Core, 2001) and sound governance systems are also subject to the cost and benefit trade-off (Boone et al. 2007; Linck et al., 2008; Vafeas, 2005), it is important to understand whether disclosure and governance have a complementary or substitutive relationship in respect to constraining earnings management. "Without

[21] To be specific, the issue of complementary or substitutive links between disclosure quality and internal governance mechanisms is related to Project 1, disclosure quality and earnings management.

additional assumptions, it is even impossible to tell whether two governance design features are complements or substitutes from the sign of their cross-sectional correlation" (Holmstrom and Milgrom, 1994, as cited in Brickley and Zimmerman, 2010, p. 240).[22] In addition, Grüning (2010) concludes that disclosure and corporate governance mechanisms complement each other to a different extent when it comes to enhancing a firm's value. Furthermore, Zhu (2009) demonstrates that disclosure and corporate governance are both complementary and substitutive to each other depending on the types of disclosure requirements in each country. Specifically, Zhu (2009) reveals that (i) a complementary relationship is indicated between corporate governance and disclosure in reducing the cost of capital in countries with strong disclosure requirements, while (ii) substitutive effects are found between corporate governance and disclosure in reducing the cost of debt in countries with weak disclosure requirements. [23]

Given that optimal disclosure and corporate governance are costly (Grüning, 2010), there is flexibility for managers to make choices and to use the desired monitoring mechanisms that best suit a firm's needs and capacity (Holm and Schøler, 2010) This indicates a substitutive relationship between disclosure and corporate governance.

[22] Detailed explanations of the potential complementary or substitutive effects for disclosure quality and internal governance mechanisms are provided in Chapter Three, while those for board and audit committee are provided in Chapter Five.

[23] The present study does not control for disclosure requirement factors, given that it is based on single country while Zhu's (2009) study is based on firms from 22 developed countries.

In his international studies on corporate governance and the cost of capital, Zhu (2009) reports complementary relationships between sound governance practices and disclosure requirements in reducing the cost of equity capital, but highlights a substitutive link in reducing the cost of debt. In another international study, Shen and Chih (2007) focus on the association between corporate governance and earnings management by controlling for the disclosure index. The findings of an IV regression in Shen and Chih (2007) reveal that firms with sound governance tend exhibit lower earnings management, while disclosure also shows an inverse relationship with earnings management, suggesting a complementary relationship. In their Dutch study, Holm and Schøler (2010) reveal that transparency is more important in firms with more exposure to the international market and that corporate governance is more important in firms with less exposure to the international market. In their discussion on the variation in corporate governance practices, Holm and Schøler (2010, p. 33) claim that "(1) corporate governance mechanisms may work differently across corporate governance systems; (2) different corporate governance mechanisms may not be a perfect substitute within a given corporate governance system; and (3) particular corporate governance mechanisms may be more important for some listed companies than for others". Grüning's (2010) study from Germany reveals that governance and disclosure are positively related to a firm's performance (measured using Tobins-Q), signalling a complementary relationship. Based on a UK sample, Mouselli et al. (2011) reveal that there is a positive relationship between disclosure quality (measured using forward looking disclosure) and earnings quality (measured using discretionary accruals estimated with the modified Jones Model) and that both of them are substitutive in influencing stock returns.

2.8.2 Board of directors and audit committee: are they complementary or substitutive?[24]

According to Armstrong et al. (2010), limited research has been conducted examining the complementary or substitutive nature of governance variables, hence no proper understanding of the complementary or substitutive roles of governance is offered in the prior literature. Linck et al. (2008, p. 311) point out that "[a] firm's optimal board structure is a function of the costs and benefits of monitoring and advising given the firm's characteristics, including its other governance mechanisms". This implies complementary relationships between alternative governance factors. Walsh and Seward (1990) point out that all internal and external governance factors address the same agency problems; hence, they are interlinked and interrelated. Gillian et al. (2006) finds that internal and external governance are complementary to each other. An abundance of prior literature explains the possible complementary or substitutive relationship between corporate governance variables and firm performance (e.g. Weir et al. 2002). Nonetheless, the issue of substitutive and complementary relationships has been neglected in research that examines the relationship between corporate governance and disclosure quality or between corporate governance and earnings management.[25]

2.9 The causality issue

The previous section discussed disclosure and corporate governance as monitoring tools that may be effective in curbing earnings management and reducing agency cost, as suggested by

[24] The potential complementary or substitutive relationship between board characteristics and audit committee characteristics discussed in this section is explored in Project 2 under corporate governance and disclosure quality.

[25] For the sake of brevity, further explanation of this issue is provided in Chapter Three.

agency theory. On the one hand, disclosure quality helps to reduce information asymmetry and to increase investor's and analyst's understanding when it comes to monitoring managerial decisions related to a firm's performance (Hope and Thomas, 2008). It also improves the detection of earnings management (Jo and Kim, 2007; Lapointe-Antunes et al., 2006; Zhau and Lobo, 2001). On the other hand, corporate governance is potentially effective in aligning manager and shareholder interests (Maher and Andersson, 2000) and would be helpful in curbing managers' propensity to manipulate earnings (Lo et al., 2010; Chang and Sun, 2009; Jaggi et al., 2009; Baxter and Cotter, 2009; Xie et al., 2003; Siregar and Utama, 2008; Cormier and Martinez, 2006). Therefore, both corporate governance and disclosure are monitoring tools that may have complementary or substitutive effects in curbing earnings management.

Nonetheless, the monitoring role of corporate governance is goes beyond merely constraining earnings management. Kent and Steward (2008), Goodwin et al. (2009), Bushman and Smith (2003), Lim et al. (2007), Cerbioni and Parbonetti (2007) and Roe (2003) suggest that sound corporate governance may mitigate conflict of interest problems, stimulating better corporate transparency. Their studies hypothesize that corporate governance may be effective in promoting higher disclosure quality. Corporate governance mechanisms that are comprised of both internal factors (e.g. board of directors and audit committee) and external governance factors (e.g. auditors, analysts and institutional investors) may be subject to complementary and substitutive effects in respect to improving disclosure quality (Brown et al., 2011). Nonetheless, there is a lack of research examining the

potential complementary or substitutive link between corporate governance (Brown et al., 2011). At this stage, the present study considers that there is may be an interrelationship between disclosure quality, corporate governance and earnings management.

Moreover, causality could affect the relationship between disclosure quality and earnings management. A significant strand of research hypothesizes that the pressure to meet or beat analyst forecasts triggers the managerial manipulation of earnings (Iatridis and Kadorinis, 2009; Bartov et al., 2002; Schwartz, 2002; Brown and Pinello, 2007; Hunton et al., 2006). [26]This suggests that there is the potential for bi-directional relationship between disclosure quality (measured using analyst forecast accuracy) and earnings management.

Meeting an analyst forecast has the potential to increase a firm's value. Forecasting activities also imply agency costs that could be detrimental to a firm's value. Prior studies, including Iatridis and Kadorinis (2009) and Hunton et al. (2006), report that managers manipulate earnings in order to meet or beat analyst forecasts. This suggests that there is the potential for reverse causality between disclosure quality (measured using analyst forecast accuracy) and earnings management. [27]

[26] "Meeting or exceeding financial analysts' earnings forecasts is an absolute necessity, if a firm is to retain its status and prosperity" (Iatridis and Kadorinis, 2009, p. 164).

[27] The present study attempts to overcome the potential simultaneity issue by using a simultaneous system of equation based on the 2SLS Regression. This is explained in detail in Chapters Three and Five respectively.

2.10 Analyst following and disclosure quality: do they have a complementary or substitutive relationship?

If analysts have the potential to reduce agency cost, they also have the potential to increase it. Hugon and Muslu (2010, p. 42) point out that analysts have incentives to overrate good news and to underrate bad news. The role of an analyst as a monitoring agent or as a pressure agent in respect to a firm's disclosure policy is inherently unclear (Yu, 2008). Although increased disclosure has the potential to be effective as a monitoring mechanism and to reduce earnings management (Jo and Kim, 2007; Lapointe-Antunes et al., 2006; Iatridis and Kadorinis, 2009), analyst following has been viewed as another monitoring tool that reduces managers' propensity to manipulate earnings (Yu, 2008; Healy and Palepu, 2001).

Based on a US sample, Yu (2008) documents that analyst coverage is negatively associated with earnings management. In other words, firms with a high analyst following are likely to be less engaged in earnings management when compared with firms with a low analyst following. Yu (2008) also finds that an inverse relationship between analyst coverage and earnings management is maintained after he assumed that residual analyst coverage is endogenous, using the IV approach (2SLS).[28] The results reveal that analyst monitoring plays an effective role in preventing earnings management. Earnings management behaviour will be more apparent among capital market players when analysts release information such as a firm's cash-flow forecast (McInnis and Collins, 2006). It has also been shown that analysts tend to discount firms that engage in earnings management (e.g. Gavious, 2007; Lin and Shih,

[28] Yu (2008) employs expected change of analyst coverage and a dummy for S&P (1 = if the company industry is listed in the S&P index, 0 = if otherwise) as instrumental variables for residual analyst coverage.

2006). Analysts have acted as whistleblowers, disclosing fraud in certain firms such as Compaq Computer, Motorola and Qwest Communication International (Dyck et al., 2006). Therefore, analysts have the potential to play a role in promoting a firm's transparency (Roulstone, 2003). Both analysts and disclosure practices can effect a reduction in earnings management, highlighting that both elements might have a complementary relationship in respect to curbing earnings management.

Nonetheless, it is also important to note that analysts might also show a substitutive relationship if they (indirectly) collude with managers in earnings manipulation or fraud. With regard to the analyst's role in providing fair reports of firms, like Enron, that are involved in accounting scandals, the analyst "can be put in the position of having to worry as much about whether a chief executive might find a report offensive as whether as investor might find it helpful" (Lashinsky, 2001,). This implies that there is a conflict of interest in the relationship between analysts and investors.

Moreover, according to Ronen and Yaari (2008, p. 199), analysts are under pressure from their employers to provide favourable reports for certain firms that they cover. In addition, an analyst's independent judgement might be impaired by the close relationship with management that comes about during the process of collecting a firm's private information (e.g. through frequent meetings during conference calls or analyst briefings). As a result, analysts can also be viewed as weak monitors that fail to exercise independent judgement due their dependence on management (with whom they need to maintain good relations) as

their main source of information (Ronen and Yaari, 2008). Therefore, analyst opinions and recommendations may be biased and detrimental to the capital market and to investors in particular. In support of this view, Drake et al. (2011) shows that analysts release positive recommendations for the firms with high growth, high accrual and low book-to-market value firms.

2.10.1 One way causality or simultaneity?

On the one hand, analysts are viewed as important intermediaries in the capital market that are effective in improving the extent of a firm's disclosure quality (e.g. Healy and Palepu, 2001). A large analyst following demands greater quality of disclosure from managers. Lang and Lundholm (1993), in their US study, find positive associations between disclosure quality and analyst following when they employ AIMR Ratings as a proxy for disclosure quality. Marston (2008) reports that a high analyst following is positively associated with higher investor relation activities in UK firms. In a seminal work from Australia, Chang et al. (2008) consider analyst following to be one of the control variables that can influence disclosure quality, which is measured using investor relation information that is publicly available online. Yu (2008) argues that analysts function as monitoring agent, motivating firms to supply accurate information to users. Some studies also document that high analyst coverage is associated with lower information asymmetry (e.g. Houston et al., 2006; Easley et al., 1998) and that managers view analysts as one of the influential determinants in respect to their share prices (Graham et al., 2005).

On the other hand, disclosure quality is viewed as one of the main factors that determine the amount of analyst coverage. Yu (2010) finds that firms with better governance disclosure have higher analyst forecast accuracy and lower analyst forecast dispersion, and that they attract a higher analyst following. Simpson (2010) suggests that regular non-financial disclosure on key performance indicators is useful to analysts when they make forecasts. Boubaker and Labégorre (2008) reveal that analysts are attracted to cover firms with lower concentrated ownership, where greater transparency is promised. Firms that provide greater disclosure quality are more favourable in the eyes of analyst than firms that offer poor disclosure quality or firms that only comply with mandatory disclosure requirements (Gelb and Zarowin, 2002). Aerts et al. (2008) find that higher analyst forecast accuracy is achieved in firms with better disclosure environments. Hirst and Hopkins (1998) claim that analyst evaluations depend on the information released by management. Given that a higher quality of disclosure helps analysts to collect, analyse and disseminate a firm's private information, it is not surprising to see a strong body of literature supporting the view that analysts prefer to cover firms with high quality disclosure (e.g. Bushman et al., 2004; Gelb and Zarowin, 2002; Lang and Lundholm, 1996).

Based on these two strands of competing evidence, it is argued that the relationship between disclosure and analyst following is not straightforward. It is implied that disclosure quality and

analyst following may have a simultaneous relationship. In other words, analyst following is a relevant proxy for a firm's disclosure quality (e.g. Louis and Robinson, 2005). [29]

2.11 Endogeneity

2.11.1 What is endogeneity?

Endogeneity occurs when independent variables are correlated to error terms (e.g. Roberts and Whited, 2011; Li, 2011). Endogeneity is comprised of three main elements: (i) omitted variables, (ii) simultaneity and (iii) measurement error (e.g. Li, 2011; Roberts and Whited, 2011; Brown et al., 2011). With respect to omitted variable problems, they can be mitigated if "unobservable determinants of" independent variables are controlled in the model (Li, 2011, p. 9). Concerning simultaneity, most of the prior literature suggests the use of a simultaneous system of equation (e.g. Cornett et al., 2008; Farooque et al., 2010) or an instrumental variable regression (e.g. Li, 2011; Yu, 2008; Brown et al. 2011). Measurement error, which is defined as the "discrepancy between the true variable of interest and the proxy" (Roberts and Whited, 2011, p. 13) could be mitigated by the use of a valid measurement for a specified proxy.

Farooque et al. (2007a) explain that the interaction between independent (X) and dependent variables (Y) could occur in one of three circumstances: (i) direct relationship, where X might

[29] It is important to examine the potential for simultaneity in the relationship between disclosure and analyst following using a simultaneous system of equation. However, this issue is beyond the scope of the present study and is recommended for future research. Due to limited data, the present study only covers the potential co-determination between (i) disclosure quality and earnings management and (ii) board independence and disclosure quality as well as (iii) disclosure quality, board independence and earnings management.

have a negative or positive relationship to Y; (ii) reverse causality, where Y is negatively or positively related to X and (iii) simultaneity or bi-directional relationships, where both X and Y are negatively or positively related at the same time (simultaneously). Failure to control for the components of endogeneity will lead to inconclusive findings. For example, if a model is affected by endogeneity, researchers would find that Y is significantly and positively related to X. But, after controlling for the confounding effects of endogeneity, Y might have negative relationship or insignificant influence on X and the reported result would be biased.

2.11.2 How to solve the problem of endogeneity

Several options for solving endogeneity problems are discussed in the prior literature:

(i) Lagged dependent variables

Li (2011) suggests that incorporating lagged dependent variables as one of the regressors is partially useful in controlling endogeneity that is caused by simultaneity. Several studies use this method, including Li (2011) and Weir et al. (2002). In examining the relationship between the chief executive officer (CEO) compensation gap and performance (measured using Tobin's Q), Li (2011) employs lagged Tobin's Q (t) as one of the regressors on the right side of the equation while the left side of equation (the dependent variable) is Tobin's Q (t+1). Following Klein (1998), Weir et al. (2002) include lagged dependent variables (lagged Tobin's Q) as one of the regressors in the model when examining the relationship between corporate governance and performance (measured using Tobin's Q).

(ii) Lagged independent variables

Prior studies also employ lagged independent variables as a solution to the simultaneity issue. Doucouliagos et al. (2007), for example, included lagged data for performance in the model, when examining the relationship between performance and remuneration. According to Li (2011), the lagged independent variable method can be used for solving simultaneity, but it is not able to solve omitted variables or measurement error problems. Lagged independent variables are included because lagged data is expected to be highly correlated with the contemporaneous data, but potentially less correlated to the error terms.[30]

(iii) Year and industry dummy and firm fixed-effects or random-effects

Incorporating year and industry dummies helps to solve the problem of omitted, which is one of the main causes of endogeneity. In the case of panel data, fixed-effect or random effects are also useful in controlling for firm variation (Li, 2011; Roberts and Whited, 2011). Examples of prior studies that employ this method include Farooque et al. (2010) and Yermack (1996).

(iv) Two-stage least square regression (2SLS)

According to Weir et al. (2002), "there are a number of techniques available to deal with the issue of simultaneously determined relationships. One method is to use two-stage least squares" (p. 539). There is plentiful research on corporate governance and

[30] This statement is controversial, especially when it is related to disclosure and corporate governance data that is subject to a stickiness issue.

performance that employs 2SLS to control for endogeneity (e.g. Weir et al., 2002; Farooque et al., 2010). 2SLS is comprised of first stage and second stage regressions. The first stage regression is where the endogenous variables (dependent variables) are regressed on their determinants according to the prior literature. Then, the fitted value or predicted value is created for the endogenous variables. After that, the second stage regression takes place: the fitted value or predicted value is used to replace the endogenous variable in the equation.

(v) Instrumental variables regression (IV regression)[31]

Li (2011), Brown et al. (2011) and Roberts and Whited (2011), suggest an IV Regression as a remedy for simultaneity problems. Examples of studies that use IV regression in solving reverse causality issue include Yu (2008) and Li (2011). The IV Regression, which is estimated based on 2SLS, is undertaken in two stages. In the first stage, the endogenous variable is regressed with the all exogenous variables and the instrumental variables[32]. The fitted value or predicted value is then calculated. The predicted values of endogenous variables will then be used in the second stage of the regression to replace the current endogenous variable data.[33]

[31] The IV regression can be performed in STATA using the *ivregress* command. STATA will automatically disclose the second stage regression only, while the first stage will only appear upon request (if the *report first stage regression* option is ticked) in the *reporting* interface.

[32] The general rules are that the instrumental variables chosen must be highly correlated with the endogenous variables, but not correlated to the error terms. Moreover, to ensure that that the instrumental variables used are valid, they need to pass several post-estimation tests.

[33] For explanations that are more detailed refer to Brown et al. (2011) and Li (2011).

(vi) Others

The General Method of Moments (GMM) estimation is another useful tool to control for endogeneity (e.g. Li, 2011). Li (2011) explains that the highest percentage of simultaneity problems could be solved using GMM estimation alone. Nonetheless, GMM is suitable for larger sets of data (e.g. 2000 firms) and it is not employed in this study.

Roberts and Whited (2011) claim that match-paired samples can also be used to control for endogeneity, given that they control for unobserved company variations such as firm size, industry and year.

2.11.3 Dealing with endogeneity

Following the example of prior literature, the present study deals with endogeneity in the first project on disclosure quality and earnings management by:

(a) Incorporating lagged ROA in the earnings management equation
(b) Incorporating internal governance mechanisms in the model to avoid model misspecification
(c) Controlling for year and industry effects
(d) Using match-paired samples which control for unobserved variations
(e) Including a set of comprehensive and relevant control variables in the model
(f) Allowing for the potential simultaneous relationship between disclosure quality and earnings management by developing a simultaneous system of equation using the 2SLS regression

Concerning the second project, corporate governance and disclosure quality, this study:

(a) Controls for year and industry effects

(b) Incorporates a set of relevant control variables

(c) Uses match-paired samples which control for unobserved variations

(d) Allows for the potential simultaneous relationship between disclosure quality and board independence by developing a simultaneous system of equation using the 2SLS regression

With regard to the third project, co-determination between disclosure quality, earnings management and board independence, the present study:

(a) Controls for year and industry effects

(b) Incorporates a set of relevant control variables

(c) Uses match-paired samples which control for unobserved variations

(d) Considers the potential bi-directional relationship between (i) disclosure quality, earnings management and board independence and (ii) disclosure quality, earnings management, board independence and corporate performance by developing a simultaneous system of equation

2.11.4 Disclosure and information asymmetry

The relationship between disclosure quality and information asymmetry is controversial. On the one hand, the notion that disclosure may be useful in reducing information asymmetry

has been widely acknowledged (Ronen and Yaari, 2001). Prior studies reveal that there is a negative association between disclosure quality and information asymmetry (e.g. Welker, 1995; Coller and Yohn, 1997; Brown and Hillegeist, 2007; Brown et al., 2004; Heflin et al., 2005).[34] In other words, a high quality of reporting reduces information asymmetry, suggesting that investors are better informed about a company's financial affairs and performance. Theoretical models (e.g. Glosten and Milgrom, 1985; Kim and Verrecchia, 1994; Dye, 1985) also support the exogenous inverse relationship between disclosure quality and information asymmetry.

Using bid-ask spreads to represent information asymmetry and AIMR ratings as a proxy for disclosure, Welker (1995) documents evidence that disclosure quality interacts negatively with information asymmetry. Moreover, the liquidity of the equity market significantly improves in parallel with the increasing function of disclosure. In their seminal work, Coller and Yohn (1997) empirically examine the link between management earnings forecasts and

[34] Although an abundance of studies reports negative associations between disclosure and information asymmetry, the present study recognizes that some other studies (e.g. Chang et al. 2008) conclude that the relationship between disclosure and information asymmetry is not yet very clear, due to endogeneity in previous studies (e.g. there is potential for reverse causality bias). It is widely recognized that an inverse relationship between disclosure quality and information asymmetry is expected (e.g. Welker, 1995; Brown and Hillegeist, 2007; Brown et al., 2004; Heflin et al., 2005). Findings from Chang et al. (2008) should not undermine the potential for a negative link to be made between disclosure quality and information asymmetry. Moreover, some drawbacks are noted in the case of the Chang et al. (2008) study. It is noted that, although Chang et al. (2008) rerun the regression using 2SLS in order to consider the reverse causality issue, they fail to control for industry effect in their model and this leads to model misspecification. Chang et al. (2008) should have incorporated industry dummies because their results may have been different if the industry effect was taken into account. It is also important to highlight that Chang et al. (2008) report a significant negative relationship between investor relation disclosure and information asymmetry in their OLS regression. Li (2011) and Roberts and Whited (2011) suggest that year and industry effect is potentially useful to control for omitted variables that cause the endogeneity issue. The methodological shortcomings of the Chang et al. (2008) study should be overcome in order to come up with findings that are more conclusive. The findings of Chang et al. (2008) cannot be extrapolated to all settings and should not undermine other research that finds negative links between disclosure and information asymmetry.

information asymmetry. Based on 179 match-paired samples in the US market, they discovered that the information asymmetry for firms that release earnings forecasts is lower than that for their counterparts immediately after the information about management earnings forecast is released to the market. From the US, based on 2432 firm-year observations from 1986 to 1996, Brown and Hillegeist (2003) report a consistent negative relationship between disclosure quality and information asymmetry and their result is robust across all subcomponents in the AIMR Ratings score. Another US study by Brown et al. (2004) demonstrates that investors in firms with frequent conference calls enjoy lower information asymmetry than firms with less frequent conference calls.[35]

From the Singapore capital market, using bid-ask spread as a proxy for information asymmetry and disclosure index as a proxy for voluntary disclosure score, Cheng et al. (2006) report a significant negative relationship between voluntary disclosure items and bid ask spread, revealing that lower information asymmetry has been achieved by means of disclosure.

In order to describe the relationship between voluntary disclosure and information asymmetry, Peterson and Plenborg (2006) investigated a sample of 36 listed firms in Denmark. They measured disclosure quality using 62 voluntary disclosure index items, which were comprised of information related to strategy, competition and outlook, production, marketing strategy and human capital. They document that the negative relationship

[35] Brown and Hellegist (2003) and Brown et al. (2004) measure information asymmetry following Easley et al. (1997).

between voluntary disclosure and bid-ask spread was confirmed, suggesting that high voluntary disclosure is associated with lower information asymmetry.

On the other hand, some studies reveal that high disclosure quality fails to reduce information asymmetry. Kim et al. (2011) provide indirect evidence that the reconciliation disclosure that was previously imposed on cross-listed firms has no effect on information asymmetry, given that it shows no statistical effects on market liquidity or the cost of capital. This corroborates the findings of Chang et al. (2008) who found that investor relation activities fail to reduce information asymmetry, even after endogeneity factors are accounted for. Researchers have been unable to draw specific conclusions about the relationship between disclosure and information asymmetry.

Demands for disclosure are substantially influenced by information asymmetry between agents and principals (Brown et al., 2004; Healy and Palepu, 2001). From the theoretical viewpoint, information released by an agent is a monitoring tool that can be used by a principal to judge whether the agent's decision is related to an increase in a firm's performance or not (Healy and Palepu, 2001, as cited in Hope and Thomas, 2008).

Theoretically, the negative relationship between disclosure quality and information asymmetry is observed based on the outcome of an investor's economic decisions (Glosten and Milgrom, 1985). Glosten and Milgrom (1985) argue that when adequate information is delivered to investors they use it to make decisions whether to buy, sell or hold stock. These

economic decisions are crucial because they affect investors' economic welfare and they have an impact on the effectiveness of the capital market in general. In this regard, Glosten and Milgrom (1985) suggest that informed investors are those who are capable of efficiently processing and applying the information that is delivered to them. If an investor's economic decisions are accurate and lucrative, it shows that they are well-informed, signalling that a lower degree of information asymmetry has been achieved.

Moreover, standard setters have an effective role in promoting low information asymmetry by determining accurate accounting standards. Arnold (1998) argues that the responsibility of financial accounting is to reduce information asymmetry between firms and the users of their information. He suggests that the role of the regulator is to reduce the problem of information asymmetry by "specifying the criteria that should govern general aspects of disclosure and also by requiring the specific disclosure of certain items" (Arnold, 1998, p. 775). In a similar vein, Healy and Palepu (2001) argue that the credibility of disclosure is improved by collaboration between "regulators, standard setters, auditors and other capital market intermediaries" (p. 406).

Compliance with sound accounting standards has been proven to be a strong positive influence on the quality of reporting (Ball et al., 2003) while, simultaneously, improving the accuracy of analyst forecasts (Ashbaugh and Pincus, 2001). Since analyst forecast dispersion can reflect the gap of information asymmetry (Lang and Lundholm, 1996), the adoption of high accounting standards will help to maintain lower levels of information asymmetry. In

other words, if information asymmetry is low, analyst forecasts are expected to be more concentrated and accurate. Therefore, it is worth noting that the role of standard setters in determining best accounting standards is crucial because it affects the level of information asymmetry.

A higher quality of disclosure is expected to reduce the frequency, intensity, cost and efforts on the part of investors to collect private information (Brown and Hillegeist, 2003). Brown and Hillegeist (2003) claim that a high disclosure quality and the timely release of information (including forward looking information) is vital in ensuring that users are fully informed, reducing users' capacity to discover a firm's private information.

Diamond and Verrecchia (1991) find that trading by uninformed investors increases with disclosure quality, suggesting that trading by informed investors does not necessarily depend on firm disclosure. In this regard, Brown and Hillegeist (2003) argue that informed investors are risk averse. Trading by uninformed investors functions as a mechanism to balance the capital market, hence the amount of trading by uninformed investors is considerably larger than that of informed investors. This implies that a high disclosure environment is beneficial to the capital market. A higher disclosure transparency promotes lower information asymmetry and significantly increases an investor's welfare (Glosten and Milgrom, 1985).

2.11.5 Disclosure and agency cost

From the point of view of agency theory, conflict of interest and information asymmetry are the two main problems in the principal-agent relationship (Belkaoui, 2001). Agency problems lead to agency cost, which functions to reduce the conflict of interest among agents and the degree of information asymmetry between managers and shareholders as well as to control managers' behaviour. Jensen and Meckling (1976) explain that agency costs are comprised of "monitoring costs", "bonding costs" and "residual loss".[36]

Agency theory implies that high disclosure quality is effective in reducing agency cost through monitoring activities (Grüning and Ernstberger, 2010; Huang and Zhang, 2008; Junker, 2005). Several prior studies document that high disclosure quality is associated with lower agency cost (e.g. Huang and Zhang, 2008; Leuz et al., 2003).

In their international comparative studies from 2008, Huang and Zhang focus on the impact of disclosure on agency cost using the "monitoring hypothesis". Based on a sample of 951 firms from 38 countries, they find that high disclosure is associated with lower minority expropriation risk and that it subsequently increases a firm's market value. In this instance, Huang and Zhang (2008) highlight that cash has been used optimally in firms with high disclosure, reducing the likelihood of agency cost being incurred.

[36] According to Jensen and Meckling (1976), monitoring cost refers to the cost related to monitor agent behavior, while residual loss is the cost incurred due to misalignment of interest between agent and principal. With respect to bonding cost, it can be defined as "the costs that the manager takes upon himself to reduce agency conflict; that is, efforts undertaken at the expense of his own utility" (Depken et al., 2006, p. 11).

To describe the link between earnings management (low disclosure quality) and investor protection, Leuz et al. (2003) employ a sample of 70,995 firm-years in 31 countries. They find that companies with high earnings management (low disclosure quality) suffer higher agency costs. In other words, the interests of minority shareholders were not well protected in the firms that were involved in earnings management when compared to their counterparts. Moreover, they show that the firms that are involved in earnings management provide low quality of disclosure and normally operate in a weak regulatory environment.

Although prior literature has proved empirically and theoretically that high disclosure quality is associated with lower information asymmetry (as discussed previously), it is important to highlight that the role of financial analysts in disseminating a firm's disclosure to the public is very important and ensures that low information asymmetry is achieved. The next section deals with the role of financial analysts as an information intermediary, from the agency theory point of view.

2.11.6 Disclosure and financial analysts

Jensen and Meckling (1976, p. 354) point out that financial analysts play a crucial role in reducing agency cost by scrutinising a firm's activities and reporting to the shareholders who pay them. They also highlight that this cost has not previously been classified as a monitoring cost. Financial analysts are accounted for within agency theory, in the sense that they function as monitoring agents who reduce information asymmetry between principals and agents.

Some research has highlighted that an analyst's role in disseminating a company's information to the public is effective in reducing the information asymmetry between agents and principals from an agency theory perspective (e.g. Ali et al. 2008; Roulstone, 2003).

In their work on 72 French firms, Ali et al. (2008) empirically examine the relationship between analyst coverage, minority expropriation risk and share liquidity from 2001 to 2004. They find that analysts are capable of increasing share liquidity by disseminating information to market players in the presence of minority expropriation risk. Using bid-ask spread and effective spread as proxies of share liquidity, they conclude that these findings outline the credibility of analysts when it comes to handling the agency problem in the presence of minority expropriation risk.

Assuming that analysts are effective agents in reducing the gap of information asymmetry, Roulstone (2003) investigates the influence of analyst following and forecast bias on market liquidity. Analysing the US data in 1995, he reveals that high analyst following (high forecast bias) will increase (decrease) market liquidity, signalling that analysts are an effective agent in the dissemination of company information to the market. Overall, the empirical evidence has indicated that analysts are effective in reducing information asymmetry between agent and principal, from an agency theory perspective. Therefore, three measures of disclosure quality related to analysts will be employed in this study: the IR Magazine Award, the narrative

content of forward looking disclosure in the annual report and the accuracy of analyst forecasts.

2.12 Agency theory and earnings management

Because there is a lack of theoretical explanations for earnings management (Ronen and Yaari, 2008), a substantial number of prior studies associate earnings management behaviour with the weaknesses implied by agency theory (e.g. Kent et al. 2010; Jiraporn et al., 2008; Davidson et al., 2004). The shortcomings in agency relationships (i.e. information asymmetry and conflict of interest) stimulate earnings management behaviour among managers (Jiraporn et al. 2008; Davidson et al., 2004). Within the framework of agency theory, earnings management has been viewed as a form of agency cost, given that it causes information asymmetry and reduces principals' understanding of a firm's performance, which subsequently influences their investment decisions (Davidson et al., 2004, p. 267). [37] Earnings management behaviour can be defined as "residual loss", according to the definition provided by Jensen and Meckling (1976, p. 308). It is a form of agency cost that is incurred due to the misalignment of goals between agents and principals. Christie and Zimmerman (1994) suggest that earnings manipulation through accounting accruals is a sign of a conflict of interest in a manager's decision making.

[37] Although Jiraporn et al. (2008) found that earnings management is beneficial and not detrimental to the shareholders value, an important body of literature views earnings management as opportunistic (Healy and Wahlen, 1999; Jones, 1991; Defond and Jiambalvo, 1994; Kent et al., 2010).

Moreover, some research has proved that information asymmetry is positively associated with earnings management activities (e.g. Richardson, 1998; Trueman and Titman, 1988). This implies that the greater the level of information asymmetry the higher the possibility of earnings management activity. Nevertheless, where information asymmetry is relatively low, earnings management activities are less likely to be practiced.

In order to justify the proposed positive relationship between information asymmetry and earnings management, the environment where the earnings management is more likely to occur should be observed. Managers have a tendency to engage in earnings management in situations where the shareholders are poorly informed and have limited access to company information, which reduces their capacity to monitor managers' behaviour (Schipper, 1989; Warfield et al., 1995). This unhealthy atmosphere between shareholders and managers generates opportunities for managers to modify accounting information according to what they want. From a theoretical viewpoint, Kim and Verrecchia (1994) document that information asymmetry between agent and principal is decreased with voluntary disclosure. Therefore, increased disclosure is a possible solution to the problem of earnings management, given that it decreases information asymmetry and subsequently reduces earnings management.

Overall, since Davidson et al. (2004) view earnings management as one form of agency cost and Jensen and Meckling (1976) view disclosure quality as one of the mechanisms mitigating

agency cost, the present study employs agency theory to explain the negative relationship between disclosure quality and earnings management.

2.13 Agency theory and corporate governance

The UK Corporate Governance Code 2010, which stipulates best practice for corporate governance structures with an aim to "facilitate effective, entrepreneurial and prudent management that can deliver the long-term success of the company" (p. 1), can be explained from the point of view of agency theory. According to Mueller (2006), corporate governance debates aim to mitigate the agency problem in the principal-agent relationship. Moreover, Baek et al. (2009, p. 44) point out that sound governance processes are one of the mechanisms that are potentially relevant to reducing agency cost (Baek et al. 2009, p. 44). Bathala and Rao (1995) state that corporate governance could act to reduce a manager's self-interest in the principal-agent relationship. Low self interest will increase the likelihood of a manager giving high quality disclosures to shareholders in order to reduce information asymmetry (Kanagaretnam et al. 2007). The monitoring effect of well-informed investors is expected to eventually reduce a firm's agency cost (Grüning and Ernstberger, 2010; Huang and Zhang, 2008; Junker, 2005).

Eisenhardt (1989) claims that research that concentrates on aligning the conflict of interest between agent and principal is best explained using agency theory. This notion is supported by Fama and Jensen (1983) who highlight the important role of the board of directors in monitoring agent activities. Moreover, Bathala and Rao (1995) point out that corporate

governance mechanisms such as external directors, managerial ownership and incentives have been viewed as an antidote to agents' conflict of interests, which is one of the central problems in the principal-agent relationship. This implies that, agency theory recognizes the role that corporate governance plays in aligning both manager and shareholder interests.

2.14 Disclosure and signalling theory

Although this study primarily makes use of agency theory, it is also worth noting that some prior studies use signalling theory to explain managerial disclosure decisions (e.g. Hasseldine et al., 2005; Wang et al., 2008; Abhayawansa and Abeysekera, 2009). According to signalling theory, a manager discloses information in order to reduce information asymmetry (Spence, 1973; Álvarez et al., 2008, p. 597) and to signal to outsiders that a firm is performing better than its peers (Miller, 2002). Signalling theory also posits that, in making decisions, investors rely on the information delivered by firms (Abhayawansa and Abeysekera, 2009), highlighting that the credibility of information is crucial in ensuring lower information asymmetry (Hughes, 1986). Nonetheless, it is also possible that underperforming firms provide sound disclosure in order to mitigate underperformance. This challenges the notion of signalling theory itself. In this regard, "A good firm can distinguish itself from a bad firm by sending a credible signal about its quality to capital markets. The signal will be credible only if the bad firm chooses not to mimic the good firm by sending the same signal" (Bhattacharya and Dittmar, 2001, p. 1).

Morris (1987, p. 51) claims that in order to ensure that information signalling from firms is effective in reducing the information asymmetry the signalling costs "must be borne by the agent so that he has an incentive to signal truthfully". However, there is no guarantee that managers will provide accurate information despite bearing the signalling cost. This is because, managers' disclosure decisions are also determined by the "marginal benefit to be gained from reducing the information asymmetry in the market" (Abhayawansa and Abeysekera, 2009, p. 297).

Prior literature offers several solutions to the problem of information asymmetry. Hughes (1986) points out that in order to ensure that the information disclosed by firms is credible the investment banker (underwriter) should act as an intermediary, monitoring the quality of the information. Abhayawansa and Abeysekera, (2009) highlight the role of the sell-side analyst in reducing information asymmetry by effectively disseminating a company's information to the capital market players.

Employing signalling theory as a ground theory, a theoretical work by Cheung and Lee (1995) suggests that being listed in reputable foreign exchanges (e.g. the New York Stock Exchange) signals a firm's high level of disclosure and increases its opportunity to be listed in other stock exchanges. Other studies that use signalling theory include Chiang (2005), who showed that high firm transparency signals sound firm performance. Hussainey and Aal-Eisa (2009) demonstrate that voluntary disclosure of narrative forward looking information is superior to

dividend information in respect to reducing investor uncertainty about future earnings. They conclude that the disclosure signalling hypothesis is confirmed.

2.14.1 The similarity between agency theory and signalling theory

Agency theory and signalling theory are partially overlapped in the sense that both theories relate to information asymmetry between firms and investors. Both theories suggest that promoting disclosure quality is crucial in reducing information asymmetry (Álvarez et al., 2008; Morris, 1987) with the aim of reducing agency problems, which in turn prevents the occurrence of agency cost. Morris (1987, p. 53) summarises the similarity between agency theory and signalling theory:

> Rational behaviour is common to both theories; information asymmetry is implied by positive monitoring costs in agency theory; quality can be defined in terms of agency theory variables; and signalling costs are implicit in some bonding devices of agency theory. Therefore, agency theory and signalling theory are consistent.

As there is common ground between these two theories, signalling theory will also be used in the present study. Given that the concept of agency cost complements the link between disclosure quality (as a monitoring mechanism that can reduce agency cost), earnings management (one form of agency cost) and corporate governance (one of the monitoring mechanisms that can reduce the agency cost), agency theory provides the main theoretical grounding for the present study.

2.15 Disclosure Quality Measurement

There are three types of commonly used measurement of quality disclosure within previous studies namely the disclosure index, the annual report awards and the management earning forecast. A less popular method, namely the volume or quantity method was also used by several prior studies. In this instance, researchers are calculating the number of pages or counting the number of sentences and words in a particular segment of information to access the disclosure quality. Staden and Hooks (2007) for example have used this method as one of the alternatives to measure the extent of voluntary disclosure by New Zealand firms. Nevertheless, since this method is very rare and uncommonly used by past researchers, this present study will exclude this method from discussion. One would possibly use this method if they want to measure the quantity of disclosure, not the quality of disclosure. Since this present study will focus on the extent of disclosure quality in general, only the widely used measurement of disclosure quality will be examined. In this study, the literatures which employ the disclosure index, disclosure awards, management earnings forecasts and analyst forecast accuracy as a measurement of disclosure quality will be discussed. Each particular measurement of disclosure quality will be examined and all possible noise and bias will be explained in this section.

(a) Disclosure Index

This section reviews some important studies that employed the disclosure index as a proxy of disclosure quality in corporate annual reports. Basically, the main approach that has been

used in these studies was initialised by selecting a group of items that will represent the disclosure index which will then be used to screen the annual report.

The disclosure indexes consists of the mandatory disclosure (e.g. Arnold and Matthews, 2002) and/or voluntary disclosure (e.g. Botosan, 1997), which depends on the requirements in the country where the firms operate, the types of additional voluntary information, as well as the motives of the study conducted by the researcher. Most of the prior literature used voluntary disclosure index to measure the extent of disclosure quality (e.g. Boesso, 2003; Lapointe-Antunes et al., 2006; Botosan, 1997; Barako et al., 2006; Meek et al., 1995; Chau and Gray, 2002). In assessing the quality of disclosure, the mandatory disclosure will be taken out of the list of the disclosure index by prior studies because it can be viewed as the minimum disclosure requirement imposed by the regulators in that particular country (e.g., Hossain et al., 1994; Hossain et al., 1995; Barako et al., 2006; Chau and Gray, 2002; Raffournier, 1995). In addition, since all big firms are mostly audited by the big four external auditors, thus they must comply with all requirements provided by the exchange or standard setters. Moreover, the compliance of listed firms with mandatory disclosures is clearly stated in the listing rules or listing requirements and all firms must follow the rules on a compulsorily basis.

Past research has normally developed the disclosure index using several steps. First, the item in the disclosure index was compiled from extensive past literatures (e.g. Lapointe-Antunes et al., 2006; Aksu and Kosedag, 2006; Ghazali and Weetman, 2006; Boesso, 2003; Meek et al., 1995). The selection of items to be included in the index also must be chosen very carefully.

Some of them scrutinised the annual reports of large firms in a particular country under study to obtain/ understand the patterns of the additional voluntary information that is supposed to be included in the disclosure index (e.g. Botosan, 1997; McNally et al., 1982).

Secondly, the disclosure index which consists of voluntary disclosure items will be crosschecked with the current accounting standards and any other mandatory disclosure requirement in a country. The items that have been found to be disclosed in a mandatory fashion will be removed and the list must comprise of voluntary disclosure elements per se (e.g. Hossain et al., 1994; Hossain et al., 1995; Barako et al., 2006; Chau and Gray, 2002; Raffournier, 1995).

Third, the verification of the disclosure index takes place. Some research normally employed an independent external examiner to validate the disclosure index. They will choose the practitioners or experts in the accounting areas to verify the list of the voluntary disclosure index like the certified public accountants (CPA), the partner of the audit firms or the head of the stock exchange commission (e.g. Chow and Wong-Boren, 1987; Hossain et al. 1994; Hossain et al, 1995; Depoers, 2000; Barako et al. 2006, Singhvi and Desai, 1971). Nevertheless, some other studies rely on personal judgement and favours not to validate their disclosure index before use (e.g. Chau and Gray, 2002; Raffournier, 1995; McNally et al., 1982; Ghazali and Weetman, 2006).

Fourth, the researcher will decide whether they want to assign a weighting to the disclosure index or not. Those who want to employ an un-weighted disclosure index will treat all items in the list as equally important and the dichotomous method will be used to score the item (Gray, et al., 1992). The firm will get a score of 1 if they disclosed the item and 0 if they have not disclosed (e.g. Boesso, 2003; Hail, 2002, Meek et al, 1995; Firth, 1980; Hossain et. al, 1994). Past studies which intend to assign the weight to each item in the list of disclosure index will take additional step in determining the weight. Some of the prior researchers based such measures on bank loan officers perceptions or financial analysts' evaluations as a mechanism in constructing the weight of each item in the list (e.g. Singhvi and Desai, 1971; Buzby, 1974; McNally et al., 1982; Chow and Wong-Boren, 1987). The disclosure index will be sent to the specific respondent for them to rate the items which are highly important or less important in making economic decisions. The result from the respondent then will be calculated and averaged to determine the weight.

Both weighted and un-weighted disclosure indexes possess niche and unique features that are subject to preference and criticism by prior studies. Cooke (1989, p. 182) argues that the drawback of weighted disclosure index is the subjectivity involved in assigning the weighting value. He claims that un-weighted index is superior as compared to a weighted index especially when the studies conducted are concentrated to all groups of users of the annual report. This is also supported by Chow and Wong-Boren (1987, p. 536) who declare that a weighted index involved high subjectivity since the determination of weighting is dependent on the perceptions of the users, and it does not portray the specific information that they

really want and desire. Furthermore, Speros (1979, p. 57) seminal work showed that firms are systematic and constant in their disclosure policy because if they disclosed important items excellently, the same condition will apply to the less important items, thus emphasising that the weighting index as something irrelevant and unnecessary.

Therefore, due to the inherent subjectivity problem in attaching the weighting to the disclosure index, prior researches are more conservative in their methodology by using both weighted and un-weighted disclosure index in their study (e.g., Chow and Wong-Boren, 1987; Barako et al. 2006) or utilising un-weighted disclosure index per se (e.g., Hossain et al. 1994).

Nevertheless, according to their empirical findings, Chow and Wong-Boren (1987, p. 537) suggest that both weighted and un-weighted disclosure index can be used interchangeably as their results are largely identical and not statistically significant different. In contrast, Wallace and Naser (1995, p. 331) noted that the simple test that they have conducted showed that both weighted and un-weighted indices cannot be guaranteed to agree closely in all circumstances. The findings by Chow and Wong-Boren (1987, p. 537) and Wallace and Naser (1995, p. 331) shown that the utilization of weighted or un-weighted disclosure index may produce different results.

Using conventional wisdom, one could expect that an un-weighted disclosure index also must be exposed to bias since it treats all items equally important and must be irrelevant because there must be circumstances whereby one item would outweigh another. In addition, the

disclosure index also contains bias from the researchers' discretionary judgements and evaluations. Barrett (1975) for example based it on his own knowledge and personal skills obtained when he worked in the area of international financial statements in constructing the disclosure index. Although bias and subjectivity are something unavoidable, all these must be carefully addressed and controlled. The bias must be in the satisfactory minimum level and overgeneralization should not be manipulated.

Although disclosure indexes are subject to controversy especially on the subjectivity involved from researchers' discretionary as well as the weighted index problem, one should admit that disclosure index has its own strength. The complete disclosure index that will be used to screen the annual report revealed the extent of the disclosure quality. The disclosure index is very comprehensive and robust in nature because it was created based on many sources including past literature and annual reports, crosschecked against the mandatory disclosure, screened to current announcement by standard setters and validated by experts in the accounting field. Moreover, since the disclosure index has been used for more than 45 years since Cerf (1961) era as to measure the extent of disclosure quality, it seems that it has survived the test of time.

Prior research developed disclosure indexes related to firm's general information (e.g. company history), capital market data (e.g. key financial information), social and environmental disclosure (e.g. information about employees, safety and health, environmental concern), and corporate governance disclosure (e.g. the quality of corporate

governance information provided by the company), forward looking disclosure (e.g. information related to the firms future affairs) and others.

This present study will be focused on the forward looking disclosure in evaluating the quality of firm's disclosure given that it is highly favoured by the financial analyst in forecasting the firm's earnings (Barron et al. 1999). In the same vein, Deegan and Rankin (1997) and Barker (1998) found that analysts favour information on the capital market which is forward looking in nature, since it is potentially capable to predicting future earnings.

Manual Vs Computerised

Content method analysis can be performed either using manual (traditional) techniques or computerised techniques. In manual content method analysis, the disclosure index will be cross-checked with the annual report to detect the specific information that was disclosed by the firms. The annual report will be read line by line and the score will be awarded if the company discloses the information listed in the disclosure index. Numerous prior literature studies have employed this techniques in assessing the quality and quantity of disclosure by the firms in their annual report (e.g. Eng and Mak, 2003; Cooke and Haniffa, 2002; Ghazali and Weetman, 2006).

Another strand of research employed computerised content method analysis in detecting the specific information in the annual report (e.g. Hussainey et. al, 2003; Schleicher et al., 2007).

Based on the information that is widely used in the annual report and analyst report, Hussainey et al. (2003) developed a list of index comprised of forward looking keywords (e.g. accelerate, anticipate, await, confidence, convince, estimate, expect, forecast) that highly connected to the forward looking information in the annual report. One type of language processing software, namely *Nudist N6* has been used to detect the specific forward looking keywords published in the firm's annual report. Hussainey et al. (2003) point out that the successful rate of this new methodology in detecting forward looking statements is quite high (85.5%) and the results are highly correlated with the manual content method analysis at 96%, thus signalling that this computerised content method analysis is potentially relevant to substitute traditional content method analysis in the near future.

Moreover, they claimed that this new methodology is comparable to the AIMR Ratings in evaluating the firm's disclosure quality that was ceased years ago. Hussainey et al. (2003) also declared that this methodology is more accurate and more consistent than traditional content method analysis which requires researcher's evaluation and discretion in scoring the firms. Following this, several researches in disclosure quality have employed the methodology introduced by Hussainey et al. (2003) in their studies (e.g. Schleicher et al., 2007; Athanasakau and Hussainey, 2010).

In a related vein, the utilisation of the computerised content method analysis was also introduced by Beattie et al. (2004). Consistent with Hussainey et al. (2003), by using *Nudist N6* software to detect the keywords in the narrative disclosure, they developed a comprehensive

framework of both financial and non-financial information based on Jenkins report. Although they concluded that this time-consuming computer-aided content analysis will limits the number of sample in the study, however, they further argued that these types of procedures are superior in terms of validity and "reliability" (p. 233).

Traditional content method analysis requires researchers to dedicate long hours in labour intensive reading process (Boesso and Kumar, 2007), hence, the number of samples in the study which utilised traditional content method analysis is relatively small (Jo and Kim, 2007). Moreover, it suffers from serious subjectivity and validity problems (Grüning, 2007). In this stark contrast, Grüning (2006) noted that the superior accuracy of computer-aided content method analysis is best to replace traditional content method analysis (as cited in Grüning, 2007, p. 650). Given that the computerised content-method analysis introduced by Hussainey et al. (2003) is valid in the sense that it is similar to the manual content method analysis in preciseness and consistencies, and promotes higher reliability in evaluating disclosure quality (Beattie et al., 2004) taken together, this present study will detect forward looking information in the firm's annual report using the methodology suggested by Hussainey et al. (2003). The development of reliable content method analysis using the computerised technique is consistent with Core (2001, p. 452) who proposed that "the improvement in disclosure quality also need to be developed by importing techniques in natural language processing from fields like computer science, linguistic and artificial intelligence".

Given that the computerised content method analysis is superior as compared to the traditional content method analysis in terms of validity and reliability (Beattie et al., 2004; Hussainey et al., 2003); this present study will employ the same methodology as introduced by Hussainey et al. (2003) in assessing the quality of narrative forward looking disclosure in the annual report.

(b) Disclosure Award

There are extensive past literatures which employed the award, rating or score of an annual report as a measurement of disclosure quality. Lang and Lundholm (1993), Zhau and Lobo (2001), Bushee and Noe (2000), Sengupta (1998) and many other US studies on disclosure quality used Association for Investment Management and Research (AIMR) Ratings as a proxy of high disclosure. Bushman et al. (2004) for example have employed Center for Financial Analysis and Research's (CIFAR) score which was conducted in 1995 to represent the quality of the annual report. Similarly Daske and Gebhardt (2006) have used annual report contests published in the *Capital, Focus Money, Bilanz*, and *Trends* Magazines in German, Switzerland and Austria.

The utilization of a professional measure in determining the firms ratings seem to reduce the inherent subjectivity problems in the disclosure index developed by the researcher. The award winning processes are normally performed by professional accounting bodies, standard setters, journalist, financial analysts and others. Therefore, the professional

evaluations and judgements on the firm's disclosure policy are supposed to be superior as compared to the self-developed disclosure index.

Investor Relations (IR) Magazine Awards

As stated in Chapter 3 (research methodology section), the IR Magazine Award is used as one of the proxies for disclosure quality in this current study. The IR Magazine Award is particularly different as compared to other awards because the winners is based on the vote of the large number of analyst, while other award, such as AIMR Ratings in the US, the winners are determined by a group of analyst specialised in certain industry. The identification of winners in the case of AIMR Ratings is questionable, in the sense that analyst might have a narrow view and prone to vote on firms they engage per *se*. In the case of NACRA award in Malaysia, the winners are determined by a group of panel adjudicators, from professional accounting bodies in Malaysia. The drawback of this NACRA award is because their winners are determined by indirect users of accounting information (i.e., professional bodies), and ignored the capability of financial analyst, which is view as more knowledgeable about the value relevant of information provided by the firms. Thus, the IR Magazine Award can be seen as more credible as compared to other financial reporting award since the winners are determined based on vote cast by analyst. [38]

[38] Detail explanation and justification about the IR Magazine Awards is provided in the Chapter 3 (research methodology section).

AIMR Ratings

Numerous US studies have employed AIMR ratings as a measurement of disclosure quality (e.g. Lang and Lundholm, 1993; Sengupta, 1998). Nevertheless, this present study is not able to utilize AIMR database because the rating was discontinued from 1997 (Core, 2001). The AIMR rating was prepared by a panel of adjudicators consisting of a group of analyst which specialised in certain areas of industry. There are the three components of disclosure that were evaluated. These are annual published information, quarterly and other published information, as well as investor relations and related aspects. The score from each component will be averaged and will represent the total score for the company (Lang and Lundholm, 1993, p. 253).

It is important to highlight that AIMR data is also exposed to critics because the evaluation was made according to analysts' judgements. Healy and Palepu (2001, p. 426) argue on the AIMR ratings' credibility specifically related to quality of the analyst feedback, the sample selection process and the bias conveyed to the ratings which are virtually unknown. Nonetheless, Lang and Lundholm (1993, p. 255) claim that industry analysts are the perfect evaluators of the firms disclosure since they are the primary users of the information provided by the firms. Furthermore, the responsibility to score the firms was delegated to a group of industry analysts, not individual analysts, thus reducing and controlling the bias rather than increasing in size.

Center for Financial Analysis and Research (CIFAR)

If the AIMR rating was focused on firms in the US capital market, the international annual report ratings which was published by Center for Financial Analysis and Research's (CIFAR) in 1995 covered more than 40 countries worldwide in their analysis – it was based on cross sectional data and unfortunately is not available beyond 1995 (Khanna et al., 2004, p. 483).

In determining the score, CIFAR scrutinise around 1000 annual reports of leading firms from numerous countries (Bushman et al., 2004). Nevertheless, the CIFAR score is also subject to bias from several perspectives. Daske and Gebhardt (2006, p. 468) for example disputed on the level of independence of the financial analysts and the bias that they bring in assigning the score. In addition, Miller (2004) also highlighted that the index used by CIFAR 1995 is less credible because it includes some insignificant items like company telephone numbers. Nevertheless, Hope (2003) found that CIFAR data is reliable based on the test that he conducted. Moreover, the systematic bias like the financial analysts' seriousness in answering the interview/questionnaire or the level of analysts' independence are something unavoidable and if we try to switch the financial analysts with other users of annual reports for example, the same bias will exist (Barrett, 1975). Therefore, the awareness of all these biases is important and any conclusion drawn should be carefully interpreted.

Other annual report awards

Besides the AIMR database and CIFAR score, there are also other types of annual report contest used by prior researchers. Daske and Gebhardt (2006) for example employed the annual report contest held in several European countries. The list of annual report winners were published in *Capital* and *Focus Money* Magazines in Germany, *Bilanz* Magazine in Switzerland and *Trend* Magazine in Austria. These types of events were held annually and provide longitudinal data that can be used in a study.

The annual report competition has been conducted in Malaysia since 1994, namely the National Annual Corporate Report Award (NACRA). The winners of the annual report awards received a trophy and certificates of achievement as an appreciation of perseverance in enhancing the quality of corporate annual report. This programme is organised by four important organizations in Malaysia, that are the Malaysian Institute of Accountants (MIA), Malaysian Institute of Certified Public Accountants (MICPA), Malaysian Institute of Management (MIM), and Malaysian stock exchange, Bursa Malaysia. The same type of awards also has been implemented in Hong Kong since 1973 named as Hong Kong Management Association (HKMA) Best Annual Report Awards. Other types of award include The Investor Relations (IR) Magazine Awards which have been conducted in various countries including US, UK, European countries, Hong Kong and Canada for several years and are still available until this research is written.

Boesso (2003) claimed that The IR Magazine Award is a reliable proxy in evaluating the firms overall disclosure policy. The IR Magazine Award is a comprehensive disclosure quality measures in the sense that it covers not only the annual report, but also other forms of disclosure including analyst briefing/meeting, the firm's investor relation activities, internet reporting and many more. Therefore, besides of employing the disclosure index (which comprise of the forward looking keywords) in evaluating the firms disclosure quality, The IR Magazine Award will also used in this present study in assessing the extent of the firms disclosure policy.

(c) Management earnings forecast

As an alternative to the disclosure index and awards in determining the quality of disclosure, the management earning forecast also has been used by past researchers (e.g. Cox, 1985; Waymire, 1985; Lev and Penman, 1990; Penman, 1980; Miller and Piotroski, 2000, Karamanou and Vafeas, 2005). Considering the advantages of management earning forecasts, Healy and Palepu (2001, p. 426) claim that management earnings forecast precision can be simply measured using the actual earnings realization. In addition, they also emphasize that the timing of disclosure also can be easily identified. Therefore, the process undertaken to ensure the accuracy of management earning forecasts does not pose a serious problem. In addition, Penman (1980, p. 157) also documented evidence that management earnings forecasts can be considered as a relevant information to the firms valuation as well as for making economic decisions.

Nevertheless, the accuracy and reliability of management earnings forecasts is under question by many empirical works (Penman, 1980, p. 133). Stein (1998) highlighted two types of noises in management earnings forecasts that are (i) moral hazard problems and (ii) adverse selection. In explaining the moral hazard problem, he emphasized that the managers have an opportunity to issue bias earnings forecasts in the annual report as to suit their needs, wants and desires. Furthermore, the adverse selection also will occur if "investors anticipate biased forecasts and rationally discount the information" (Stein, 1998, p. 197).

Keeping aside the aforementioned biases, it is also important to note that the accuracy of management earnings forecasts can be manipulated by the firms and managers. Kasznik (1999) seminal work confirms that the accuracy of management earnings forecasts are influenced by earning management activity, whereby the managers are found to practice income decreasing and income increasing methods in achieving the desired earnings figure. Therefore, it seems that the utilization of management earnings forecasts as a proxy of disclosure quality is something irrelevant because it is exposed to manipulation and exploitation by the managers and the firms. Hence, the management earnings forecast will not be included as one of the proxy for disclosure quality in this study.

(c) Others

Besides of management earnings forecast, analyst earnings forecast has also been used as a proxy for disclosure quality by prior studies (e.g. Byard et al., 2006; Bhat et al 2008). Although analyst forecast accuracy is also subject to similar bias as in management earnings forecast,

nonetheless the bias is expected to be lower given that the analyst forecast accuracy, however is determined by the financial analyst (i.e., the independent external party) and released by several group of analysts, hence is viewed as less bias and more objective than management earnings forecast. Some recent study like Lang and Marfett (2011) employ analyst following, analyst forecast accuracy and earnings management as a proxy for disclosure quality.

2.16 Earnings Management measures

a. How managers engage in earnings management

Managers can opportunistically manipulate earnings given that there is a space for manager to exercise discretionary judgement over the selection of the acceptable accounting choices (e.g. Fields et al. 2001; Healy and Wahlen, 1999; Teoh et al. 1998). Ronen and Yaari (2008) discussed that earnings management can be performed by altering the accruals (the different between revenues and cash). Given that the motives of earnings management by managers are vary, hence, managers can opportunistically manage earnings in various ways. Jiambalvo (1996, p. 40) summarised various approaches to manipulate earnings into two groups namely (i) real decision and (ii) pure accounting decisions and (iii) combination of real and pure accounting decision.

Table 2-2: Alternative approaches to manipulation

"Real decisions" (operating, financing and investment decisions undertaken primarily to manage earnings as opposed to directly increasing firm value)
Operating decisions
Delay or accelerate research and development expenditures
Delay or accelerate maintenance expenditures
Delay or accelerate sales
Financing decisions
Early extinguishment of debt
Investment decisions
Sales of securities to affect gains and losses
Sales of fixed assets to affect gains and losses
"Pure accounting decisions" (no direct, first-order effect on cash flows)
Change in accounting principles (e.g., change to straight-line depreciation)
Change in useful life of fixed assets
Change in estimate of residual value of fixed assets
Change in policy regarding capitalising-expensing repairs
Adjust estimate of bad debts expense
Combinations of "real" and accounting decisions
Select LIFO and manage purchases

Source: Verbatim from Jiambalvo (1996, p. 40)

A variety of earnings management detection techniques put a question mark as to which method is outperforming the others. Zhou and Lobo (2001) employ the modified Jones model proposed by Dechow (1995) to identify discretionary accruals, while Shaw (2003) utilized a model suggested by DeFond and Jiambalvo (1994) to detect the existence of earnings management practices via discretionary accrual. Other studies, such as Lapointe-Antunes et al. (2006) select cross-sectional Jones model, while Jo and Kim (2007) adhere to a model proposed by Kothari et al. (2005) which concentrated on performance-matched discretionary accruals and discretionary current accruals by Rangan (1998) to identify earnings

management involvement. One possible explanation for these apparently various techniques to detect earnings management behaviour is because earnings management can be performed using several methods, thus different methods need to be used as an alternative to capture earnings management behaviour.

Schipper (1989, p. 92) argues that "different forms of accrual-based and "real" earnings management are not equally easy to discern". Furthermore, she claims that "…earnings management could occur in any part of the external disclosure process, and could take a number of forms" (p. 92). This implies that various methods of earnings management measures are not able to promise the accurate and precise detection of earnings management activity since opportunistic earnings management can occur in many ways.

Young (1999, p. 833) contends that although earnings management can take place in various forms such as asset sales, changes in research and development expenditure, accounting method change and accruals, yet accruals is still a magnet of attraction among the managers to be manipulated since it is less costly as compared to others. In this instance, DeFond and Park (1997) supply evidence that managers prefer to employ discretionary accruals to perform earnings smoothing actions. This, in turn, shifts the direction of earnings management detection to the component of discretionary accrual, besides other techniques of earnings management manipulation. In other words, the detection of earnings management activity using current methodology is found to be useful and successful in accessing the company's involvement in earnings management behaviour.

Moreover, although earnings management can be performed using several methods, the techniques to spot earnings management activity also have been developed in such a way that has been proven to be robust across all other methods, hence revealing that the current techniques of earnings management detection is able to comprehend the pattern of earnings manipulation by managers.

Since earnings management detection techniques are varied and complicated, it is important to understand them according to their function and classification. In this instance, Goncharov (2005) classify earnings management detection techniques into three main categories namely simple analytical procedure, neural network procedures and statistical procedures. Among these three types of techniques, Goncharov (2005) argues that statistical procedures are the most favourable method to be used in the empirical research, while simple analytical procedures are commonly used by the auditor in scrutinising the financial statements during audit tasks. With regards to neural network, Goncharov (2005) claims that the neural network function is as "to distinguish non-fraudulent statement from fraudulent by construction and training of the artificial neural networks" (p. 37).

Whilst scrutinising Goncharov's (2005, p. 37) statement that "statistical procedures are most suitable for research purpose", this present study will undertake a careful examination on the types of statistical procedures in determining the best model to be employed as a proxy of discretionary accruals.

According to Goncharov (2005, p. 39), statistical procedures consist of three main components that are cash flow models, accrual models and combine approach. In the midst of these three main models, accrual models are the most popular earnings management method among the researchers. Goncharov (2005) divides accrual models into two components that are aggregated approach which mainly concentrated to accrual (e.g. Jones Model, Modified Jones Model) and the disaggregated approach which is focused on other earnings management techniques (e.g. bad debt provision and allowances).

Choi et al. (2001, p. 571) highlighted many bias and noise exist in earnings management researches especially related to "choices of scaling variables, selection of affected control sample and measurement error". Specifically, the imperfect earnings management detection model suffers from measurement error, and this in turn will lead to bias and inaccurate results. In this instance, Kasznik (1999, p. 67) states that "any proxy for discretionary accruals is a noisy measure of discretionary accruals". This argument is also consistent with Kothari et al. (2005, p. 164) who claim that "accurate estimation of discretionary accruals does not appear to be accomplish using existing models". The uncontrolled biases environment combining with the accurate methodology selection will make the hypothesis accidently accepted (Choi et al., 2001, p. 577).

To the best of my knowledge, there are more than twenty earnings management detection models offered by the prior literature. Most of the prior research will claim that their model is the best and outperformed others according to their empirical findings. The contradictory and

inconsistent view by the previous researchers put a question mark on which earnings management method is the most favourable method. Furthermore, the arguments by Kasznik (1999) and Kothari et al. (2005) with regards to the non-existence of a single perfect model make the selection process more complicated. In discussing multiple methods in accounting research, Cooke (1998, p. 209) contends that "…no one procedure is the best but that multiple approaches are helpful to ensure that the result are robust across methods". However, inspired by recent study by Dechow et al. (2010) whom reviewing 300 papers on earnings management determinants and consequences, claim that Jones (1991) Model, Modified Jones (1995) Model, and Performance-Matched Discretionary Accruals Model by Kothari et al. (2005) are the top three in the list of the most commonly used measures for earnings management.[39] Hence, this study employ Modified Jones (1995) as the main proxy for earnings management, while Jones (1991) model and Performance-adjusted discretionary accruals will be used as in the sensitivity analysis test.

Modified Jones (1995) Model and Jones (1991) Model

As mentioned before, Dechow et al. (2010) classified the Jones (1991) Model and the Modified Jones (1995) Model are the most popular techniques in detecting earnings management. As in Jones (1991), Defond and Jiambalvo (1994) and Bartov et al., (2001), the non-discretionary accruals (NDA) in Jones (1991) model are stated below:

$$NDA_t = \alpha_1(1/LTA) + \alpha_2(\Delta REV_t/LTA) + \alpha_3(PPE_t/LTA)$$

[39] The benefits and drawbacks of these models are discussed in detail in Dechow et al. (2010) study.

Where NDA_t is the non-discretionary accrual in the year *t* divided by lagged total assets, ΔREV_t represent change in revenue in the year *t* (current year revenue minus last year revenue) and PPE_t is the gross property, plant and equipment at the end of *t.* Jones (1991) divided all components with lagged total assets (LTA) to reduce heteroskedasticity. Jones (1991) argues that the inclusion of change in revenue and property plant and equipment in the model is "to control for changes in non-discretionary accruals caused by changing conditions" (p. 211). The coefficient parameters (α_1, α_2 and α_3) are obtained by performing OLS Regression using this equation:

$$TA/LTA = b_1(1/LTA) + b_2(\Delta REV_t/LTA) + b_3(PPE_t/LTA) + e_t$$

Where TA is total accrual and e is error term. Later, Dechow et al. (1995) improved Jones (1991) model by incorporating ΔREC_t (current year receivables minus previous year receivables) element in the model. The NDA according to Dechow (1995) version can be stated as follow:

$$NDA_t = \alpha_1(1/LTA) + \alpha_2(\Delta REV_t - \Delta REC_t /LTA) + \alpha_3(PPE_t/LTA)$$

The effectiveness of Jones (1991) model and Modified Jones (1995) model have been documented across other various methods in a variety of sample settings and have been strongly recommended by the researchers. For example, Dechow et al. (1995) suggested that the modified Jones model is the best earnings management detection measure after reviewing its performance across four different sets of sample in their study, in line with

Peasnell et al. (2000) and Young (1999). This is also supported by Guay et al. (1996) who reports that the Jones and the modified Jones model "appear to have the potential to provide reliable estimates of discretionary accruals". Besides, Goncharov (2005, p. 70) suggests that "... the most suitable research instruments are still the Jones-type models". This, in turn, will motivate the researchers to employ the Jones model and modified Jones model as discretionary accruals proxies in their studies since these models offer less measurement error. In this instance, "cross-sectional versions of the standard-Jones and modified-Jones models now dominate the earnings management literature" (Peasnell et al., 2000, p. 315).

Dechow et al. (1995, p. 199) claim that modified Jones (1995) model improve estimation parameters by Jones (1991) given that the Jones (1991) model ignored the potential discretionary factors of revenue; hence will create a measurement error to the discretionary accruals. Furthermore, Young (1999, p. 857) argues that the Jones and modified Jones models attempt "to control for non-discretionary accruals related to sales growth and the level of depreciable assets". Therefore, given that Modified Jones (1995) model is more credible than Jones (1991) model, it will be employed as a main discretionary accruals proxies in this study.

Performance Adjusted Discretionary Accruals Model

More recent research by Kothari et al. (2005) used a performance-adjusted discretionary accrual model. Kothari et al. (2005) present evidence that their performance-adjusted discretionary accruals model is more reliable than the Jones and Modified Jones model since their model includes a lagged return on assets (LROA) components to control for firm

performance effects. Hence, this present study will also utilise performance-adjusted discretionary accruals introduced by Kothari et al. (2005) as a third earnings management detection model. The performance-adjusted discretionary accrual model offered by Kothari et al. (2005) can be stated as follow:

$$NDA_t = \alpha_1(1/LTA) + \alpha_2(\Delta REV_t - \Delta REC_t /LTA) + \alpha_3(PPE_t/LTA) + LROA$$

Healy and De Angelo Model

Although the Jones and modified Jones model is also subject to critique by several studies, including McNichols (2000), who denies the effectiveness of these models to detect earnings management, the bias and noise brought by other alternative models are even worse. Young (1999) for example claims that Healy (1985) and DeAngelo (1986) models are contaminated by serious measurement error. On top of that, Young (1999, p. 836) argue that "Healy (1985) model is the simplest and most naïve method of estimating discretionary accruals", thus this technique might not be able to capture earnings management engagement by the firms.

Furthermore, Healy's model offers an assumption that opens critique by other researchers whereby this model estimates that "systematic earnings management occurs in every period" (Dechow et al. 1995, p. 197). It is obvious that such an assumption is not valid since it does not mirror the actual complexity of the business world. Kaplan (1985) argues that the working capital accrual will react accordingly with the real economic situation, hence signalling that constant estimation of non-discretionary accruals in Healy (1985) assumption is under question.

With regards to the DeAngelo (1986) model, the assumption that non-discretionary accruals are constant over time impairs the credibility of this model. Young (1999, p. 837) argue that this "assumption underlying DeAngelo Model is inappropriate for the majority of the firms". This implies that the capability of discretionary the accruals model to absorb the fluctuation in the firm's economic condition is crucial as to as to ensure the robustness of the suggested model. In this instance, Dechow et al. (1995, p. 198) argue that "failure to model the impact of economic circumstances on non-discretionary accruals will cause inflated standard errors due to the omission of relevant (uncorrelated) variables". Given that these two models are less superior than the Jones (1991) Model and Modified Jones (1995) model, the Healy (1985) Model and De Angelo (1986) Model are not going to be employed in this present study.

Balance sheet and cash flow approach

Total accrual is one of the main components in the earnings management calculation. The total accrual can be calculated either using balance sheet approach or cash flow approach. All components are divided with lagged total assets to reduce heteroskedasticity. In the balance sheet approach, as in Ronen and Yaari (2008, p. 406), total accrual is calculated using this formula:

[Change in current assets – Change in cash] – [Change in current liabilities – Change in current maturities of long-term debt – Change in income tax payable] – depreciation and amortization expense.

While in the cash flow approach, Jo and Kim (2007, p. 572) estimate total accrual as follow:

Earnings before extraordinary items and discontinued operations – Operating cash flow

Hribar and Collins (2002) report that the cash flow approach is superior to the balance sheet approach since the later suffers from serious measurement errors. They present evidence that the estimation error arising from the balance sheet approach has been transmitted to the discretionary accruals (p. 117). Therefore, this mechanical effect would derive the wrong findings and conclusion, whereby the acceptance or rejection of the hypothesis might be significantly influenced by the silent measurement error that exists from the employment of the balance sheet approach (Hribar and Collins, 2002). As an alternative to estimating accruals, Hribar and Collins (2002)[40] suggest the cash flow approach would be a better option rather than the balance sheet approach. As such, this present study will employ cash-flow approach in calculating the total accruals, rather than a balance-sheet approach.

Since most of the literature on disclosure quality and earnings management are based on single measures of earnings management detection model, to ensure the robustness of the result, three earnings management models will be employed – the Jones (1991) model, modified Jones model (1995) as well as the performance-adjusted discretionary accruals model according to Kothari et al. (2005). After considering the advantages and disadvantages of each earnings management model, these three measures have been chosen due to their effectiveness in detecting earnings management. Moreover, the earnings management model related to accruals (e.g. Jones, Modified Jones and Performance-Adjusted model) is favourable given that it has been shown to be the most popular earnings management

[40] Attempts have been carried out tried to find supporting argument or evidences other than Hribar and Collins (2002), but the author regret to inform that the efforts were failed.

method among the managers (Dechow et al., 2010; Mohanram, 2003; Perry and Williams, 1994).

Table 2-3: Jones-type models

Panel A: Data modifications			
Model name	Author	Data	
Time-series models	e.g., Jones (1991)	Time series data (firm- specific regressions)	
Cross-sectional models	e.g., DeFond/ Jiambalvo (1994)	Panel data (time-series cross-sectional regression)	
Panel B: Left-hand-side variable modifications			
Model name	Author	Left-hand-side variable	Right-hand-side variables
Total accrual models	e.g., Jones (1991)	AA_t	e.g., ΔREV_t, PPE_t
Working capital model			
- Teoh et al. model	Teoh et al. (1998c)	CCA_t	REV_t
- Margin model	Peasnell et al. (2000)	CCA_t	ΔREV_t, CR_t
Panel C: Right-hand-side variable modifications			
Model name	Author	Right-hand-side variables	
Jones model	Jones (1991)	ΔREV_t, PPE_t	
Modified Jones model	Dechow et al. (1995)	$(\Delta REV_t - REC)$, PPE_t	
Cash flow Jones model	Shivakumar (1996)	ΔREV_t, CFO_t, PPE_t	
Beneish model	Beneish (1997)	$(\Delta REV_t - \Delta REC_t)$, AA_{t-1}, P_t, PPE_t	
Accounting process model	Garza-Gomez et al. (1999)	CCA_{t-1}, CFO_t, CFO_{t-1}, $NCCA_{t-1}$	
Performance matched model	Kothari et al. (2002)	$(\Delta REV_t - \Delta REC_t)$, ROA_t or $_{t-1}$, PPE_t	
Forward looking model	Dechow et al. (2003)	$((1+k)\ \Delta REV_t - \Delta REC_t)$, AA_{t-1}, GR_Sales_t, PPE_t	
Panel D: Estimation procedure			
Model name	Author	Estimation procedure	
OLS model	e.g., Jones (1991)	OLS regression	
Kang-Sivaramakrishnan model	Kang and Sivarakrishnan (1995)	Generalised method of moments procedure	

Source: Verbatim from Goncharov (2005, p. 54)

2.17 Corporate Governance Measures

One of the hot topics in corporate governance is related to how it is measures (e.g. Brown et al., 2011; Brickley and Zimmerman, 2011). Some studies measure corporate governance using individual measures (e.g. Eng and Mak, 2003; Haniffa and Cooke, 2002; Ghazali and Weetman, 2006) while some recent studies rely on corporate governance index (e.g. Liu and Lu, 2007; Shen and Chih, 2007; Jiang et al., 2008; Brown and Caylor, 2006; Bebchuk et al. 2009).[41] Nevertheless, the utilisation of corporate governance index has been widely criticised (e.g. Brickley and Zimmerman, 2010; Daines et al. 2010; Brown et al. 2011). Brickley and Zimmerman (2010) point out that researchers so far are not knowledgeable enough to determine what constitute good or bad governance practice because each corporate governance variables are based on different construct, resulting in the wrong classification of items in the corporate governance index. Brown et al. (2011, p. 102) point out that corporate governance index neglecting the potential substitutive relationship because the scoring process is performed based on the assumption that all corporate governance variables are complementary. Moreover, they claimed that "the trouble with the construction of governance indices is that the methods employed are largely arbitrary, being hampered by the fact that we do not have an agreed theory of CG to guide variable construction or to indicate which aspects should receive greater weighting". (p. 104).

[41] Corporate governance index normally developed based on the best practice of corporate governance laid down by the regulators. Then, the scoring process is performed by cross checking the index with the firm's governance system. Next, the corporate governance score for each firm is calculated. Because of the labour intensive reading is necessary to perform this process, some studies relying on the corporate governance scores released by specific regulatory or professional bodies. There are also researches that used Principal Component Analysis (PCA) to transform corporate governance characteristics into a number of factors (e.g. Larcker et al. 2007).

With the serious methodological shortcoming in hand, it is not surprising to see corporate governance literature supplied mixed and contradict results. Of course, there are extensive examples related to contradict results in corporate governance research. One simple example is the link between independent directors and disclosure. Although most of studies hypothesized positive link between external directors and disclosure (e.g. Haniffa and Cooke, 2002), some empirical findings offers negative relationship (e.g. Eng and Mak, 2003). In this regard, Brickley and Zimmerman (2010) also highlighted that increasing percentages of independent directors are not always helpful to increase board effectiveness. They claim that large percentages of independent directors might not always good for the firms, given that they completely dependent on the information supplied to them (where they are in the position of less information advantage and less knowledgeable as compared to internal directors). Moreover, Brickley and Zimmerman (2010, p. 239) argue that:

> Adding a director with very similar backgrounds and experience to the board is unlikely to produce new insights after reviewing the same material, either for monitoring or advising. This suggests that there is no one person who would be an ideal director for all firms, since being ''ideal'' depends on the backgrounds of the other board members and top managers. The ideal next director also depends on the specific circumstances facing the firm. Having the ''right mix'' of outsiders can promote productive discussions and monitoring in a confidential setting

In their paper, Brickley and Zimmerman (2010) also discussed about the "six common myths in corporate governance" which touches controversial issues in corporate governance including the no consensus definitions of corporate governance, the indiscernible internal and external governance concept, the explicit roles of independent directors, the unidentified of bad and good governance practices, the utilisation of governance index as a proxy for sound governance and the failure to

determine the best governance practices based by comparing the one firm governance practices with its peer. These suggest that there is a complicated issue in measuring corporate governance as discussed by prior literature. Hence, this present study decided to use both individual measures and composite measures (i.e., ACQUALTIY and ACQUALITYBR) for corporate governance in the present study.

3 Disclosure Quality and Earnings Management

3.1 Introduction

The first project intends to examine how disclosure quality and corporate governance are related to earnings management. This topic deserves special attention, given that (i) the predictive ability of disclosure and governance to deter earnings management is still ambiguous; (ii) the issue of complementary and substitutive relationship between disclosure quality and corporate governance to earnings management is still unresolved; (iii) prior literature has neglected to control for governance variables when examining the link between disclosure and earnings management and (iv) the potential bi-directional relationship between disclosure and earnings management has been predominantly ignored in the prior literature. While prior studies examine the link between disclosure quality and earnings management (e.g. Jo and Kim, 2007; Zhau and Lobo, 2001; Lapointe-Antunes et al., 2006) and corporate governance and earnings management (e.g. Kent et al., 2010; Xie et al., 2003) in separate empirical analyses, the present study extends prior literature by examining the impacts of both disclosure and governance on earnings management in one model. The findings of this project are expected to improve our understanding of the contextual relationships and the implications of disclosure and corporate governance choices for earnings management behaviour.

3.2 The theoretical framework for disclosure quality, corporate governance and earnings management

There is a widespread concern in the prior literature with regard to managers' incentives to distort accounting earnings. Managerial incentives to manipulate earnings could be predominantly driven by personal motives, especially when earnings are tied to their compensation and to rewards such as bonuses, cash compensation or stock options (e.g. Watts and Zimmerman, 1986; Healy, 1985; Bartov and Mohanram, 2004; Baker et al., 2003). Furthermore, the incentive to engage in earnings management could be imbued with other factors that include the desire to beat or meet analyst or management forecasts (e.g. Iatridis and Kadorinis, 2009; Kasznik, 1999; Hunton et al., 2006; Cormier and Martinez, 2006; Bartov et al., 2004; Payne and Robb, 2000; Abarbanell and Lehavy, 2003; Dutta and Gigler, 2002; Soffer et al., 2000), given that firms that fail to meet or beat management forecasts will be indirectly punished by the capital market players (e.g. Hirst et al., 2003; Matsunaga and Park, 2001). Managers also inflate earnings to avoid reporting disappointing losses (e.g. Degeorge et al., 1999; Burgstahler and Dichev, 1997; Holland and Ramsay, 2003), in order to hype the share price during initial public offerings (IPOs) or seasonal equity offerings (SEOs) (e.g. DuCharme et al., 2001, Teoh et al., 1998; Rangan et al., 1998), to avoid breaching debt covenants (e.g. Defond and Jiambalvo, 1994), or due to political pressures and regulatory requirements (e.g. Beaver and Engel, 1996; Meyer et al., 2000; Liu et al., 1997; Haw et al., 2005; Key, 1997: Han and Wang, 1998). Earnings management leads to earnings mispricing by the market players and, consequently, distorts the capital market's information and system.

This shortcoming is inherent in the separation of ownership and control that is embedded in the agency relationship, which leads to a conflict of interest and information asymmetry (Jensen and Meckling, 1976). Prior studies argue that the incentives for managers to commit earnings management is dependent on the extent of a firm's disclosure transparency and corporate governance (e.g. Cormier and Martinez, 2006; Shen and Chih, 2007; Jo and Kim, 2007) and that these are means to overcome the problem. Disclosure and corporate governance are monitoring tools that operate within a firm's governance system and which are potentially useful for reducing information asymmetry and, therefore, reducing the agency cost (Holm and Schøler, 2010; Hope and Thomas, 2008; Arcot and Bruno, 2011). Given that earnings management is one form of agency cost (Davidson et al., 2004), the present study assumes that the firms with lower earnings management will have sound corporate disclosure and corporate governance.

Agency theory views disclosure as one form of external monitoring mechanism that is potentially useful in reducing information asymmetry and, hence, reducing the agency cost (Shleifer and Vishny, 1997). Evidence from the empirical literature suggests that increased disclosure can have two contradictory consequences: (i) it reduces information asymmetry (e.g. Peterson and Plenborg, 2006; Welker, 1995; Coller and Yohn, 1997; Brown and Hillegist, 2003) and (ii) it increases earnings management (e.g. Cormier and Martinez, 2006; Hunton et al., 2006; Iatridis and Kadorinis, 2009; Kasznik, 1999). However, the latter is conditional upon forecasting disclosure, such as the management and analyst earnings forecasts. Correspondingly, it is unclear whether disclosure is mitigating or motivating earnings

management (Riahi and Arab, 2011), although causality is another main concern that plagues the relationship between disclosure and earnings management.

In relation to the predictive ability of corporate governance, agency theory views the corporate governance mechanism as one of the classical antidotes that are important in order to reduce conflict of interest and information asymmetry (Shleifer and Vishny, 1997; Ingley et al., 2004; Brennan, 2006). An indication of sound internal governance includes a well-governed board and audit committee, which potentially encourage the reduction of agency costs in a firm by means of monitoring activities (e.g. Maher and Andersson, 2000; Mueller, 2006; Ronen and Yaari, 2008; Adams and Ferreira, 2007). With respect to the potential of corporate governance for deterring earnings management, Kent et al. (2010, p. 175) state that:

> Corporate governance mechanisms are also likely to mitigate unintentional accruals estimation errors. Sound governance should ensure that necessary controls and sufficient expertise are at hand to ensure that accruals estimates are reliably determined. For example, sound governance should increase the probability that adequately trained and qualified personnel are involved in decision making related to the provision of accounting information to management, or to ensure that sufficient controls are in place to detect reporting misstatements.

Given that both disclosure and internal governance are subject to a cost and benefit trade-off, they may be complementary or substitutive in constraining earnings management. Each of the components of corporate governance are interrelated and endogenously chosen, and they are largely determined by the relative cost and benefit that they contribute in reducing the conflict of interest between managers and shareholders (Brick et al., 2008, p. 3; Cornett et al., 2009). Internal (e.g. board of directors and audit committee) and external (e.g.

disclosure) governance variables are expected to provide monitoring services to the firms (Brown et al., 2011; Jensen and Smith, 1985; Weir et al., 2003). Therefore, they reduce the information asymmetry between agent and principal as well as reducing the related agency cost. Each of them contributes, to a different extent, in the reduction of information asymmetry and the cost of capital. This suggests that certain governance variables might be outperformed by other governance variables in the system (Holm and Schøler, 2010; Brick et al., 2008). In light of the above discussion, Holm and Schøler, (2010) conclude that "differences in corporate governance mechanisms may be explained by inherent differences in corporate governance systems including institutional structures, differences in the functioning of seemingly substitution corporate governance mechanism, as well as differences in company specific characteristics affecting the appropriateness of given corporate governance mechanism" (p. 44). They also point out that the variation in corporate governance practices by firms is largely dependent on the unique needs, specific agenda and necessity of each firm. This suggests that corporate governance mechanisms are not perfectly substitutive for each other. Contrary to this view, Arcot and Bruno (2011, p. 4) conclude that a firm's variation in governance practices is particularly influenced by the desire to "extract the private benefit". Arcot and Bruno (2011) claim that disclosure and corporate governance are substitutive; hence, the adherence to either one of these two components are basically effective in enhancing corporate performance, given that they demonstrate that a firm's performance is increased with either sound disclosure quality or corporate governance. Where the view is held that corporate governance is surrounded by multiple unresolved myths (Brickley and Zimmerman, 2010), it is not surprising to see no concrete evidence on

either the complementary or substitutive relationship within a specified governance system.[42] Firms also may use their own unique mechanism to mitigate agency cost (Bebchuk and Hamdani, 2009; Holm and Schøler, 2010; Donnelly and Mulcahy, 2008). Therefore, compliance with the corporate governance code is not necessarily effective in curbing earnings management (Kent et al., 2010) or increasing performance (e.g. Arcot and Bruno, 2006b). Due to these complexities, the current study is motivated to investigate the potential complementary or substitutive link between disclosure and corporate governance in constraining earnings management. Moreover, causality factors will also be taken into account using a simultaneous system of equation in order to enable further understanding of the direction of the relationship between disclosure and earnings management.

3.3 Literature review on disclosure quality and earnings management

Prior studies on earnings management and disclosure quality are very limited, especially from settings outside of the US. Zhou and Lobo (2001), Hunton et al. (2006) and Jo and Kim (2007) focus on the US capital market, while Lapointe-Antunes et al. (2006) concentrate on the Swiss regime. Other research by Iatridis and Kadorinis (2009) is based on the UK context, while Bauer and Boritz's (2009) study is based on a Canadian sample. Recently, Riahi and Arab (2011) examined the influence of disclosure and earnings management in Tunisia.

[42] Brickley and Zimmerman (2010) extensively explained 6 myths in corporate governance, including its definitions, its measurements, what constitutes "bad" and "good" governance and the effectiveness of governance mechanisms.

As well as the lack of evidence, the major drawback of prior research in disclosure quality and earnings management lies in the issue of model misspecification. Research in this area has neglected the possible predictive ability of corporate governance in deterring earnings management (e.g. Jo and Kim, 2007; Iatridis and Kadorinis, 2009; Lapointe-Antunes et al., 2006; Riahi and Arab, 2011; Zhau and Lobo, 2001). As such, research that controls for governance variables when examining the association between disclosure quality and earnings management deserves merit because it provides evidence on the joint impact of corporate governance and disclosure in curbing earnings management. Moreover, except in the cases of Zhau and Lobo (2001) and Lapointe-Antunes et al. (2006), previous studies paid no substantial attention to the endogeneity related to the causality of the relationship between disclosure quality and earnings management. Prior research also predominantly used contemporaneous data (e.g. Riahi and Arab, 2011; Jo and Kim, 2007; Iatridis and Kadorinis, 2009; Lapointe-Antunes et al., 2006). In these cases, where no lagged data is incorporated in the model, they indicate poor efforts to cater for simultaneity.

Another important issue worth mentioning is in regard to the proxies for disclosure quality. While Zhau and Lobo (2001) employ AIMR Ratings *per se* as a proxy for disclosure quality, Riahi and Arab (2011) and Jo and Kim (2007) focus on press releases by the firms. Lapointe-Antunes et al. (2006) rely on a disclosure index and compliance to accounting standards, while Iatridis and Kadorinis (2009) focus on voluntary disclosure. While it has been widely acknowledged that disclosure quality proxies are subject to bias and measurement error, it is critical to use more than one measure in order to see the impact of disclosure choices on

earnings management. Accordingly, none of the prior literature in this area has employed Investor Relation Awards, forward-looking sentences and analyst forecast accuracy as proxies for disclosure quality when examining the link between disclosure and earnings management. Although the disclosure quality proxies used in the present study are far from perfect, at least they provide some certainty with respect to the firms' disclosure choices.

Riahi and Arab's (2011) study of 19 Tunisian firms during the year 1999-2008 demonstrates that disclosures that are related to financial decisions and performance are helpful in reducing managers' incentives to manipulate earnings. Specifically, Riahi and Arab (2011) find that press releases (a proxy for disclosure transparency) and disclosure of financial information shows statistically significant relationship at $p<0.01$ (coef = -0.004) and $p<0.05$ (coef = -0.215) respectively. Non-financial information, however, indicates insignificant results. Although Riahi and Arab (2011) control for blockholders and managerial ownership, they fail to control for internal governance variables, including board and audit committee characteristics that are presumed to be inversely linked to earnings management.

In determining the simultaneity relationship between disclosure quality and earnings management, Zhou and Lobo (2001) concentrate on US firms during 1990-1995. In their study, disclosure quality is measured using AIMR Ratings, while earnings management is estimated using the Modified Jones Model. Zhau and Lobo (2001) tackle causality issues using a simultaneous system of equation. Using the earnings management model, they control for firm size, leverage, current performance and future performance; while, in the disclosure

quality equation, they control for firm size and market adjusted stock return. None of the corporate governance variables was used to control for both earnings management and disclosure, although the potential of corporate governance for enhancing disclosure and curbing earnings management has been widely discussed in the prior literature (e.g. Kent and Stewart, 2008; Goodwin et al., 2009; Kent et al., 2010). Several control variables (e.g. audit quality, profitability, and corporate governance) were neglected. These shortcomings indicate that their models suffer from a serious misspecification bias. As far as their findings are concerned, they reveal a negative bi-directional relationship between disclosure and earnings management. This implies that causality can run in both directions. Disclosure is negatively related to earnings management and earnings management is inversely associated with disclosure, at the same time.

Another US piece of research on disclosure and earnings management, Hunton et al. (2006), is a quantitative study that relies on a thought experiment in order to identify managerial decisions in specific circumstances. Specifically, Hunton et al. expected that managers would try to achieve or exceed analyst's earnings estimates by manipulating the sale of available-for-sale (AFS) shares held by the firms. Moreover, also it was also predicted that a higher quality of disclosure, specifically with regard to earnings, would effectively reduce managers' propensity to exploit the sale of AFS shares in order to achieve or exceed analyst's earnings estimates. Using 62 financial executives and 3 chief executive officers as a sample, Hunton et al. (2006) demonstrate that the respondent's selection of the specific sale of AFS shares was to satisfy financial analyst's earnings estimates. By and large, this implies that earnings

management activity is commonly used by financial executives in the US. Furthermore, respondents also pointed out that earnings management activity would be easily detected in a high disclosure quality environment as compared to low disclosure quality regimes, thereby suggesting that high quality disclosures promote lower earnings management activity in the US.

Lapointe-Antunes et al. (2006) examined the relationship between disclosure quality and earnings smoothing as well as the implication of disclosure quality to the value relevance of earnings, in the Swiss context. By treating disclosure quality as endogenous, the 3SLS regression shows a significant negative relationship between disclosure quality and income smoothing. On the other hand, discretionary accruals are positively related to value relevant of information, at $p<0.01$. Nonetheless, in endogenising disclosure quality proxies, it is important to note that their study fails to control for board and audit committee characteristics in the disclosure quality equation. The influence of board and audit committee characteristics is extensively acknowledged by prior studies (e.g. Nelson et al., 2010; Kent and Stewart, 2008).

In their 2007 study, Jo and Kim hypothesised that disclosure frequency is inversely related to earnings management. Furthermore, it was predicted that consistent disclosure policies would help to increase a firm's performance subsequent to the security offerings. After controlling for confounding effects, Jo and Kim (2007) find that there is a negative relationship between disclosure frequency and earnings management, and this result is

robust across other earnings management measures. Moreover, Jo and Kim (2007) document that the firms which increase the disclosure frequency around the time of security offerings subsequently show a good performance, according to their market return. This finding implies that a firm's effort to enhance the extent of disclosure prior to security offerings was rewarded by higher market returns in the capital market.

In their UK study in (2009), Iatridis and Kadorinis empirically examine the relationship between earnings management and voluntary disclosure. Using cross-sectional data for 131 UK firms during the year 2007, the results reveal that voluntary disclosure is negatively related to earnings management at $p<0.10$. Even though the OLS regression captured important variables such as operating cash flow, market value, profitability and leverage, it is important to highlight that none of the internal governance mechanisms are listed. Moreover, while longitudinal data is probably useful in providing a better understanding of the correlation, establishing causality is also important for the purpose of building a better picture of the direction of the relationship. In the small part of their study on investor protection and earnings management, Shen and Chih (2007) included a disclosure index as one of the control variables for earnings management. Using firms from 48 countries as their sample, Shen and Chih (2007) report that there is a significant negative relationship between disclosure index and earnings management at $p<0.01$. Prior studies of firms in the US, Switzerland, Tunisia and the UK capital market produce consistent results with regards to the role of disclosure policy in constraining managers to engage in earnings management activity. However, as mentioned before, none of them provides proper control for internal corporate

governance variables in their models. It remains unclear whether disclosure and internal governance provide complementary or substitutive effects in deterring earnings management, and to what extent they may be influential in reducing information asymmetry. Research so far has been unable to answer this important question. In other words, more evidence is necessary to enable an understanding of the impact of disclosure and governance choices over earnings management, before any comprehensive conclusion is made.

3.4 Literature review on corporate governance and earnings management

Studies on earnings management and corporate governance are undeniably extensive. The majority of them are based on the US capital market, and the US has been widely known as a highly regulated country (e.g. Chang and Sun, 2009; Xie et al., 2003; Klien, 2002; Niu, 2006; Jiang et al., 2008; Bedard et al., 2004; Zhao and Chen, 2008; Park and Shin, 2004; Zhong et al., 2007; Chtourou et al., 2001). As such, the findings cannot be easily extrapolated to other, less regulated environments like the UK. Although prior research on earnings management and corporate governance is all-embracing, majority of them failed to control for the confounding effects of disclosure proxy when examining the link between corporate governance and earnings management, though the predictive ability of disclosure is intriguing according to the previous findings.

Nonetheless, special particular credit should be given to Shen and Chih (2007) [43], who considered disclosure factors in their research. It is also important to note that the corporate governance index, which Shen and Chih (2007) used as a proxy for corporate governance, was subject to critiques in the prior literature (e.g. Brown et al., 2011).[44] Some other studies (e.g. Jiang et al., 2008; Liu and Lu, 2007) also rely on the corporate governance index, which has been viewed as less credible than the individual measures given that it had been developed based on an unreliable construct.[45] Having said this, introducing individual measures of corporate governance will hopefully be effective in mitigating the endogeneity that, due to the omitted variables, provides little certainty in capturing the internal governance systems of a firm.

In relation to Shen and Chih's (2007) study, their proxy for disclosure quality is measured using the "transparency of the financial reports and accounting standard" (p. 1003), which is largely dissimilar to the one that is used in the present study. Given that disclosure quality is hard to measure, and subject to measurement issues, it is crucial to test the model using multiple disclosure quality proxies in order to increase the robustness of the findings. To overcome this problem, the present study employs three analyst-related measures for disclosure quality, namely the Investor Relation Award, the forward-looking disclosure and

[43] The main variable of interest in Shen and Chih (2007) is the corporate governance index, while disclosure quality is one of the control variables in their model.
[44] See Chapter Two for detailed discussion on the critiques of the corporate governance index/composite measures.
[45] See Chapter Two for detailed discussion on the measurement issues of corporate governance.

the analyst forecast accuracy. Furthermore, Shen and Chih (2007) focus on large firms *per se* and, hence, their findings cannot be generalised to small firms.

In a separate but related issue, prior studies also provide inadequate control variables for predicting earnings management. For example, Shen and Chih's (2007) studies fall short due to the exclusion of audit quality variables, while Kent et al. (2010) fail to control for leverage. In a related vein, Xie et al. (2003) ignore both leverage and audit quality variables in their model. In light of the above discussion, it is not surprising to see that prior research in corporate governance, disclosure quality and earnings management predominantly offers conflicting findings, and suffers from model misspecification bias.

Previous research provides two competing views with regard to the effectiveness of corporate governance on constraining earnings management. There is a strand of research that supports the proposition that corporate governance is beneficial in reducing managers' propensity to manipulate earnings. From the US viewpoint, Chang and Sun (2009) examine the impact of the Sarbanes-Oxley Act (SOX) to earnings informativeness and earnings management. Using 106 firms in 2002-2003, they report that audit committee independence is significant in constraining earnings management post-SOX, but insignificant pre-SOX. Moreover, they also report that audit committee independence, board independence and CEO duality are positively associated with earnings informativeness. Their findings support regulatory initiatives in curbing earnings management in the US capital market.

Xie et al. (2003) examined the association between the characteristics of board, audit committee and executive committee and earnings management (estimated using the Modified Jones Model). Using 282 US firms, they document that board independence, audit committee expertise and a higher frequency of board meetings and audit committee meetings create less incentive for managers to manipulate earnings. Using the government–score developed by Brown and Caylor (2006) as proxy for corporate governance, Jiang et al. (2008) find an inverse relationship between government-score and discretionary accrual. The Bedard et al. (2004) study, which used 300 firms in the US during 1996, reports that audit committee independence, board independence and audit committee expertise reduce upward earnings management; while board size, ownership by non-executive directors, and more experienced members on the board reduce downward earnings management.

Another US study, however, provides contradictory results with regard to the predictive ability of corporate governance in curbing the earnings management problem. Zhao and Chen (2008) document that lower fraud and accruals are associated with a staggered board (which is a proxy for weak governance), thus suggesting that strong board governance is not always effective in constraining managers' propensity to manipulate earnings. This is also supported by Park and Shin (2004) who document that the composition of independent directors on the board is less important than the tenure of external directors who are more influential in constraining earnings management. In addition, the Zhong et al. (2007) US study reports a positive association between blockholder ownership and earnings management, thereby highlighting a complementary relationship. Moreover, although the Chtourou et al. (2001) US

study reveals that audit committees which (i) were comprised of all independent directors and with at least one financial expert or (ii) were comprised of all independent directors and met at least two times a year were associated with lower earnings management. Nonetheless, they fail to find any relationship between audit committee independence (as suggested by the Blue Ribbon Committee (1999)) and the percentage of independent members on the board and earnings management. As such, firms with sound corporate governance practices are also prone to earnings management problems.

While the US studies tend to provide mixed results, studies from the UK provide concrete support for the monitoring roles of independent directors in a company. Using research and development (R&D) expenses manipulation as a proxy for earnings management, Osma's (2008) UK study records that independent director's roles are important in constraining earnings management. This finding is in corroboration with Habbash et al. in their recent (2010) study, using FTSE 350 firms. Moreover, Peasnell et al. (2000) report that the presence of independent directors is able to mitigate earnings management in firms with negative earnings or below-last-year earnings, although an audit committee member is statistically insignificant in influencing earnings management.

In Europe, based on 97 firms in Greece, a recent study by Dimitropoulos and Asteriou (2010) suggest that board independence is negatively correlated with discretionary accrual. However, Piot and Janin (2007) and Osma and Noguer's (2007) studies fail to find a significant relationship between audit committee independence and earnings management in the

French and Spanish context, respectively. Nonetheless, it appears that institutional investors are more influential in reducing earnings management, as reported by Osma and Noguer (2007).

In Australia, it appears that the audit committee provides a stronger effect in reducing earnings management, according to previous literature. Kent et al. (2010) examined the relationship between corporate governance and innate and discretionary accrual quality. They find that audit committee characteristics (i.e., audit committee independence, frequency of audit committee meetings and the number of audit committee members) outperform board independence in constraining innate and/or discretionary accrual. In fact, board independence showed no significant relationships. Using Jones (1991) and Dechow and Dichev (2002) models as proxies for earnings management, Baxter and Cotter (2009) find that the existence of an audit committee is essential in reducing earnings management, although they also document that other audit committee characteristics (e.g. audit committee independence, audit committee size and audit committee meeting frequency) are insignificant in reducing managers' propensity to manipulate earnings. Their study was based on 309 Australian firms in 2001. Benkel et al. (2006) reveal that board and audit committee independence are significantly negatively associated with earnings management among large firms in Australia when earnings management is measured using DeAngelo's (1986) model. Similar to Benkel et al. (2006), the Davidson et al. (2005) Australian study also reports that board independence and audit committee independence has a stronger effect on earnings management than audit quality and internal control factors.

As well as in the US, UK, Europe and Australia, a long line of empirical research on earnings management and corporate governance has also been conducted in other countries including China, Hong Kong, Korea, Taiwan, Malaysia and Indonesia. From the Asian perspective, prior studies reveal some mixed findings; however, they generally provide supporting evidence for the relationship between corporate governance and earnings management. In this instance, studies from China (e.g. Liu and Lu, 2006) and Korea (e.g. Kang and Kim, 2011) reveal that the corporate governance index reduces earnings management. Having independent directors is viewed as effective in mitigating earnings management in China's capital market (e.g. Lo et al., 2010), in Hong Kong (e.g. Jaggi et al., 2009) and in Taiwan (e.g. Kao and Chen, 2004), but not in the Malaysian context (e.g. Abdul-Rahman and Ali, 2006). Moreover, while board size is an important determinant of earnings management in Taiwan (Kao and Chen, 2004), it has no significant effect in Malaysian firms (Abdul-Rahman and Ali, 2006). Contrary to the US and Canadian studies (e.g. Klien, 2002; Xie et al., 2003; Niu, 2006), Abdul-Rahman and Ali (2006) find that audit committee independence are insignificant in constraining earnings management.

The contribution of corporate governance to deterring earnings management is obscure. Variation is detected over corporate governance preferences, which largely depends on the country types, their regulatory requirements, and the unique features of each firm as well as

the externalities.[46] With respect to variation in corporate governance practices, Holm and Schøler (2010, p.33) point out that:

> "…three differences should be considered; (i) corporate governance mechanisms may work differently across corporate governance systems; (2) different corporate governance mechanisms may not be perfect substitutes within a given corporate governance system; and (3) particular corporate governance mechanisms may be more important for some listed companies than others".

3.5 Literature review on simultaneity between disclosure quality and earnings management

Although section 1.3 of this chapter extensively reviewed the empirical and theoretical literature which supports an inverse relationship between disclosure quality and earnings management, it is also important to note that reverse causality[47] and simultaneity can also happen in these circumstances. In this regard, empirical literature offers several studies which conjecture income smoothing or earnings quality as one of the main determinants of disclosure quality. This signals that causality might run in both directions (e.g. Jans et al., 2005; Shaw, 2003; Francis et al., 2008; Bouer and Boritz, 2009). In one part of their study, and contradicting their hypothesis, Jans et al. (2005) report that income smoothing (measured using discretionary accrual) was positively related to disclosure quality when disclosure is measured using the Belgian Association of Financial Analysts awards. This study used 222 firm-years during 1997-2002. Nonetheless, one of the drawbacks of the Jans et al. (2005) study is that there is no control sample (i.e., the non-winners of the Belgian Association of Financial Analyst award) employed in their study. Another US study, namely Shaw (2003) used

[46] Externalities in this context include culture, religion and belief.

[47] Reverse causality, in this context, means that causality runs from earnings management to disclosure quality, while simultaneity, in this context, means that causality runs from disclosure quality to earnings management and from earnings management to disclosure quality at the same time.

AIMR Ratings as a proxy for disclosure quality; this was similar to Jans et al. (2005). Shaw's (2003) study reveals an inverse relationship between earnings quality and disclosure quality at the 0.04 level, which indicates that firms with sound disclosure quality "are more conservative in their accrual choices" (p. 1047). Using 677 US firms, the Francis et al. (2008) US study reveals that firms with sound earnings quality[48] choose to release better disclosure quality information than their counterparts, and consequently reduce the cost of capital.

In examining the potential simultaneous link between disclosure quality and earnings management using a simultaneous system of equation, Zhau and Lobo's (2001) US study documents a negative bi-directional relationship between disclosure quality and earnings management, suggesting that causality can run in both directions. However, Zhau and Lobo (2001) fail to control for audit committee and board characteristics and this leads to a serious model misspecification issue.

Bauer and Boritz (2011) predict a negative link between absolute discretionary accruals and the winning of corporate reporting awards in Canada. They posit that "[h]igher absolute discretionary accruals will cause firms to try to hide their increased earnings management by being less transparent in their financial reporting and these firms will be less likely to participate. Participating firms with lower absolute accruals are more likely to win an award since transparency will increase as accruals (earnings quality) decrease (increase)" (Bauer and

[48] Specifically, Francis et al. (2008) focus on (i) the complementary or substitutive link between disclosure and earnings quality and (ii) the disclosure and cost of capital. In their study, one of the proxies used for earnings quality is the absolute value of abnormal accruals, which has been widely viewed as one of the popular proxies for earnings management.

Boritz, 2011, p. 14). They find that winners and nominated groups are performing better than firms that are not involved in the competition, and that they are less engaged in earnings management when compared with the non-participant group. Bauer and Boritz (2011) claim that the participants involved were determined based on earnings quality criteria but that the winners were selected based on higher disclosure in their annual report.

In the light of above discussion, it can be concluded that the causality between disclosure quality and earnings management remains unclear. While Bauer and Boritz (2011), Shaw (2003) and Francis et al. (2008) report negative links between earnings management and disclosure quality, Jans et al. (2005) record a positive relationship. In addition to these contradictory findings, Zhau and Lobo (2001) report a bi-directional relationship between disclosure quality and earnings management. As such, more research that examines causality between disclosure and earnings management is crucial to solve the issue.

3.6 Hypothesis development

3.6.1 Disclosure quality and earnings management

Agency relationship is surrounded by the moral hazard problem that stems from shortcomings in information asymmetry (Ronen and Yaari, 2008). Earnings management manifests a diversion of interest between agent and principal in the gap of information asymmetry, which potentially diminishes shareholders' value (Ronen and Yaari, 2008). In order to overcome this problem, investors demand better transparency to equip them with relevant knowledge in monitoring the firm (Hope and Thomas, 2008; Jensen and Meckling,

1976; Huang and Zhang, 2008; Junker, 2005). In spite of this, managers have superior knowledge about a firm's activities and have greater incentives to disclose or to conceal private information from the outsiders (Ronen and Yaari, 2008). In this respect, managerial incentives for voluntary disclosure are largely subject to managerial discretion and flexibility over the cost and benefit trade-off (Heitzman et al., 2010). This could possibly distort the quality of accounting information (Healy and Palepu, 2001), given that it is not intended to reduce information asymmetry, but may be driven by other personal factors (Field et al., 2001). In this complex situation, the roles of capital market intermediaries (e.g. analyst, auditor and regulators) are imperative in enhancing the credibility of a firm's disclosure (e.g. Subrahmanyam, 2005; Healy and Palepu, 2001; Healy and Wahlen, 1999).

One of the most important capital market players worth mentioning, in the disclosure and earnings management context, is the financial analyst. Although the roles of financial analysts are complicated in the sense that they may mitigate earnings management by acting as a whistleblower or providing relevant monitoring activities (Dyck et al., 2006; Yu, 2008), or they may motivate earnings management when issuing cash flow or earnings forecasts (e.g. McInnis and Collins, 2006; Iatridis and Kadorinis, 2009). Financial Analysts may also (indirectly) collude with managers in earnings management cases (e.g. Lashinsky, 2001) or issue a positive recommendation in order to maintain a good relationship with the top management in the firms that they cover (Ronen and Yaari, 2008). An extensive prior literature, however, supports the view that financial analysts are sophisticated users of accounting information whose effect is promising in regard to reducing information

asymmetry and deterring agency cost (e.g. earnings management). Given that "perfectly credible (or completely unbiased) disclosure by the firms is not optimal because it is too costly" Core (2001, p. 443), analyst roles could be helpful in detecting disclosure bias, and their perception of a companies' disclosure activities is a reliable proxy for disclosure quality, since it controls for endogeneity.

One possible reason for this complexity is due to the fact that analysts work closely with management in collecting private information, and this probably impairs their independence (Ronen and Yaari, 2008). Prior literature suggests that analyst following improves a firm's disclosure quality (e.g. Marston, 2008; Lang and Lundholm, 1993; Chang et al., 2008) and that there is a complementary relationship. Nonetheless, substitutive effects can also occur if an analyst uses their ability to uncover and interpret information in the presence of a weak disclosure environment. Another view suggests that high disclosure quality increases analyst effectiveness in disseminating companies' information (Ali et al., 2008; Roulstone, 2003).

Analysts are undeniably competent, better equipped and knowledgeable when it comes to detecting earnings management behaviour (Gavious, 2007) and they are credible judges of a firm's disclosure policy (Healy and Palepu, 2001; Lang and Lundholm, 1993; Byard et al., 2006; Balsam et al., 2002) when compared with the average user of a companies' information. This is due to their ability to access (Lang and Lundholm, 1993) and analyse all forms of a company's disclosure. Since most investors are naïve about companies' disclosure (Skinner, 2003) they depend on analysts in order to make investment decisions (Ronen and

Yaari, 2008; Clement and Tse, 2003; Byard et al., 2006; O'Brien and Bhushan, 1990; Walther, 1997). Transfers of knowledge from analysts to the capital markets reduces information asymmetry (Roulstone, 2003; Brennan and Subrahmanyam, 1995; Ali et al., 2008), and analyst recommendation becomes influential on the decision processes of average investors (Ronen and Yaari, 2008; Chung and Kryzanowski, 2001) and institutional investors (Walther, 1997). With knowledge in hand, investors will indirectly punish firms that are involved in earnings management (Gavious, 2007; Teoh et al., 1998; DuCharme et al., 2004), given that the investors are more proficient in monitoring agent behaviour (Bushman and Smith, 2001) after being indirectly informed by the analyst about companies' earnings management activities (Gavious, 2007). In other words, a high disclosure quality environment will limit managers' propensity to manipulate earnings (Lapointe-Antunes et al., 2006; Fields et al., 2001; Hunton et al., 2006; Jo and Kim, 2007) because well informed investors are able to detect earnings management (McKee, 2005). This, in turn, will help to reduce managers' propensity to manipulate earnings.

Notwithstanding that the present study relies on the ability of disclosure to reduce information asymmetry, in building the hypothesis, the uncertain effects of these two variables are also acknowledged. While agency theory recognises the roles of disclosure quality in mitigating information asymmetry (Jensen and Meckling, 1976; Huang and Zhang, 2008; Junker, 2005), and this proposition is largely supported theoretically and empirically (e.g. Dye, 1985; Welker, 1995; Coller and Yohn, 1997 Peterson and Plenborg, 2006; Brown et al., 2004; Brown and Hillegist, 2007), some studies fail to provides concrete evidence of the

impact of disclosure quality on information asymmetry (e.g. Kim et al., 2011; Chang et al., 2008). They, therefore, provide an ambiguous link between disclosure quality and information asymmetry.

Jo and Kim (2007) point out that when disclosure quality is high, investors will be better informed about a company's activities, thus, they will be able to detect earnings management. Hunton et al. (2006) demonstrate that greater comprehensive income disclosure reduces managers' propensity to manipulate earnings. Given that disclosure quality functions as one form of monitoring system that can reduce the conflict of interest in the agency relationship (Jensen and Meckling, 1973; Healy and Palepu, 2001; Bushman and Smith, 2001), low quality of disclosure deters any monitoring function by the investors (Hope and Thomas, 2008) and may increase the moral hazard problem (i.e., earnings management behaviour) to a significant degree (Jo and Kim, 2007; Lapointe-Antunes et al., 2006). In other words, high disclosure quality will improve investors' and analysts' capabilities for identifying earnings management, hence, reducing managers' incentives to manipulate earnings. Consistent with the agency theory framework, that assumes that high disclosure quality reduces information asymmetry and enables investors and analysts to detect earnings management activity, the present study hypothesises that:

H1a: Ceteris paribus, there is a negative relationship between disclosure quality and earnings management.

3.6.2 Corporate governance and earnings management

With regard to the association between corporate governance and discretionary accruals, Kent et al. (2010) posits that:

> Sound governance should ensure that necessary controls and sufficient expertise are at hand to ensure that accruals estimates are reliably determined. For example, sound governance should increase the probability that adequately trained and qualified personnel are involved in decision making related to the provision of accounting information to management, or to ensure that sufficient controls are in place to detect reporting misstatements (p. 175).

As such, the incentives to manipulate earnings are prospectively dependent upon the extent of corporate governance practices in firms. Several corporate governance variables will be considered in the present study, including board characteristics and audit committee characteristics.

3.6.2.1 Board independence and audit committee independence

Independent directors on the board and audit committee are viewed as an investor's most important bastion for the protection of their value (Rosenstein and Wyatt, 1990; Habbash, 2010; Jensen and Meckling, 1987). Such a view can be expressed appropriately through the lens of agency theory. Agency theory views independent directors as one of the vigilant tools for the monitoring of managerial behaviour. Moreover, independent directors are expected to create a sense of balance in the board and they are supposed to make a credible judgement on a firm's financial decisions. An independent director's role on the board and in the audit committee is expected to reduce the conflict of interest, hence, resulting in lower earnings management opportunistic behaviours (e.g. Klien, 2002; Bedard et al., 2004). Lanis and Richardson (2011) find that the firms with a high proportion of independent directors on

the board are unlikely to be involved in tax aggressiveness. Beasley (1996) reveals that firms with a high proportion of outside directors are less likely to be involved in fraud. Another strand of research records that board independence and audit committee independence are statistically significant in preventing managers' opportunistic behaviour (e.g. Kent et al., 2010; Xie et al., 2003; Bedard et al., 2004; Habbash, 2010). The presence of independent directors in the firms has resulted in an increase in the share price (e.g. Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992 and Brickley et al., 1994).

With regard to the effect of the involvement of independent directors on earnings management, Armstrong et al. (2010, p. 188) argue that:

> Given that inside directors are typically executives of the firm, and that executives are typically knowledgeable parties to fraudulent or irregular accounting activities, inside directors are unlikely to be effective monitors of fraudulent accounting activities. Outside directors, on the other hand, seem less likely to participate in these perverse activities.

Consistent with the views implied by agency theory, the UK Corporate Governance code stipulates that half of the board must be comprised of independent directors (excluding the chairman). This indicates that the Code views that the minimum requirement of 50% independent directors on the board (excluding the chairman) is necessary to the provision of adequate monitoring roles in the company. Furthermore, the code also specifies that all audit committee members must be composed of independent directors. This suggests that the monitoring of financial matters should be performed exclusively by a team of independent directors in an audit committee, without any intervention from non-independent directors.

Given that an audit committee is in charge of the financial affairs of a company, independent directors in audit committees play a significant role in preventing and detecting any irregularities in the financial affairs and financial reporting (e.g. Xie et al., 2003). Prior studies hypothesise that independent audit committees are associated with lower earnings management (e.g. Xie et al., 2003). Carcello and Neal (2003) report that the presence of an independent audit committee provides monitoring tools that curb managers' intentions to terminate the services of auditors who issued a going-concern report to the company. Nonetheless, their results are mixed. While Xie et al. (2003) and Kao and Chen (2004) report a negative relationship between independent directors and earnings management, Park and Shin (2004) and Chtourou et al. (2001)[49] fail to find any association between board independence and earnings management.

Based on agency theory, that suggests that board independence acts as a watchdog over firms' operations and provides monitoring incentives for reducing earnings management activity, the present study hypothesises that:

H1b: Ceteris paribus, there is a negative relationship between board independence and earnings management

H1c: Ceteris paribus, there is a negative relationship between audit committee independence and earnings management

[49] Chtourou et al. (2001) fail to find any relationship between the audit committee with all independent directors (as recommended by US Blue Ribbon Committee (1999)) and earnings management.

3.6.2.2 Board meeting and audit committee meeting

"The number of meetings is an indicator of the effort put in by the directors" (Ronen and Yaari, 2008, p. 258); hence, it has received significant attention by the regulator. The Smith Report (2003) recommends that audit committee meetings be "held to coincide with key dates within the financial reporting and audit cycle" and that they should meet not less than 3 times in a year (The Combined Code 2003, p. 48).[50] This indicates that audit committees should devote adequate time to the discussion of matters concerning a firm's financial affairs and auditing. They are, therefore, supposed to have the capacity to focus on earnings management issues. On top of that, there is a risk that audit committees might overlook any irregularities in the financial statement if the number of meetings is low. Therefore, it is not surprising to see that Chtourou et al. (2001) find that audit committees that are comprised of all independent directors and that are engaged in more than two meetings in a year are negatively associated with earnings management. Beasley et al. (2000) also find that having fewer audit committee meetings increases the number of fraud cases in US firms.

With regard to board activity, Chen et al. (2006) reveal that fraud is less likely to occur in the firms with greater number of board meetings because they have sufficient time to solve a firm's financial problems. In the same way, Vafeas (1999) claims that a higher number of board meetings provides sufficient time for directors to exercise their duty and responsibility in line with the shareholders' interest, and subsequently improve a firm's performance. Xie et al. (2003) point out that audit committees and boards that spend more hours on meeting are

[50] In a similar vein, the US Blue Ribbon Committee (1999) recommended that audit committee meetings should be conducted not less than four times in a year.

able to exercise greater monitoring functions, so they are more likely to be able to curb earnings management. They report that audit and board meeting frequency are inversely related to earnings management. Therefore, the present study hypothesises that:

H1d: Ceteris paribus, there is a negative relationship between board meeting and earnings management

H1e: Ceteris paribus, there is a negative relationship between audit committee meeting and earnings management

3.6.2.3 Board size and audit committee size

The UK corporate governance code (2010) suggests that audit committee members must be at least comprised of three independent directors. Nonetheless, the Code does not suggest a specific number of board members. Paragraph B.1 the UK Corporate Governance Code (2010, p. 12) states that:

> The board should be of sufficient size that the requirements of the business can be met and that changes to the board's composition and that of its committees can be managed without undue disruption, and should not be so large as to be unwieldy.

Given that the UK Corporate Governance Code (2010) is an expression of an agency theory overview, the Code indicates that a satisfactory number of board members and a large number of audit committee members are favourable as it may enable them to offer greater monitoring functions, hence, constraining earnings management behaviour (e.g. Kiel and Nicholson, 2003; Xie et al, 2003;). A higher number of board members will stimulate a higher

number of independent directors on the board, with vast range of experience and knowledge (e.g. Linck et al., 2008; Xie et al., 2003; Dalton et al., 1999) and, thereby, increase the board's capability in constraining earnings management. Larger boards offer greater manpower, more potential effort and various expertises that are potentially useful for maintaining the quality of earnings. A large board size is practical because complicated firms' operations need to be monitored by a large number of people (Coles et al., 2008).

Nevertheless, it is also widely believed that a small board is more effective in monitoring a firm's activity (Coles et al., 2008). Prior studies (e.g. Hoitash et al., 2009; Yermack, 1996; Core et al., 1999) suggest that a smaller board is favourable to an increase in the firms' governance process. Unlike the large board, the smaller board is not subject to coordination and free-rider problems (Lipton and Lorsch, 1992); hence, it is not surprising to find that smaller boards are effective in increasing a firm's performance (Yermack, 1996; Loderer and Peyer, 2002). Based on 1097 Taiwanese firms, Kao and Chen (2004) report that large board size is associated with higher earnings management, and small board size is associated with lower earnings management.

Consequently, Ronen and Yaari (2008, p. 245) point out that "The connection between earnings management and board size is not straightforward". By the same token, Xie et al. (2003, p. 300) point out that:

> A smaller board may be less encumbered with bureaucratic problems and may be more functional. Smaller boards may provide better financial reporting oversight. Alternately, a larger board may be able to draw from a broader range of experience. In the case of earnings management, a larger board may be more likely to have independent directors with corporate

or financial experience. If so, a larger board might be better at preventing earnings management.

Given that there is a competing view with regard to the relationship between board size and earnings management, in similarity to Xie et al. (2003), the current study makes no prediction on the direction of the relationship between audit committee and board size and earnings management. In other words, audit committee size and board size can influence earnings management in a positive or a negative direction. Therefore, the present study predicts that:

H1f: Ceteris paribus, there is a positive or negative relationship between board size and earnings management

H1g: Ceteris paribus, there is a positive or negative relationship between audit committee size and earnings management

3.6.2.4 Audit committee financial expertise

Paragraph C.3.1 of The UK Corporate Governance Code (2010) states that "at least one member of the audit committee has recent and relevant financial experience". Hence, the Code takes the view that financial expertise is essential in the detection of irregularities and in maintaining vigilance over a firm's financial accounting and reporting. Audit committees that are equipped with professional accounting qualifications and experience are more capable of carrying out the responsibilities that have set out by the Code. For example, one of the main audit committee responsibilities, as stated in the Code, is "to monitor the integrity of the financial statements of the company and any formal announcements relating to the

company's financial performance, reviewing significant financial reporting judgements contained in them" (Para C.3.2, p. 20). It can be concluded that prior literature suggests that having an audit committee with relevant financial expertise is helpful in the mitigation of financial misstatement (Abbott et al., 2002) and is able to constrain managers' behaviour by reducing earnings management (Chtourou et al., 2001; Carcello et al., 2008; Xie et al., 2003).

Audit committee expertise is also effective in promoting higher accrual quality (Dhaliwal et al., 2010) and enables more vigilance with respect to preventing management from carrying out the intention of dismissing an auditor that has issued a going concern report (Carcello and Neal, 2003). Moreover, Hoitash et al. (2009) document that those firms with audit committee members who have a background in accounting and supervisory roles are less likely to release the disclosure of material weaknesses. Therefore, the present study hypothesises that:

H1h: Ceteris paribus, there is a negative relationship between audit committee expertise and earnings management.

3.6.3 Simultaneity between disclosure quality and earnings management

Although, in the previous section, the present study predicts a negative relationship between disclosure quality and earnings management, it is important to note that this might not apply in all circumstances. In reality, firms with aggressive earnings management might also tend to

provide impressive levels of disclosure to outsiders.[51] A manager's cognitive ability in running a complex business operation can also be used to successfully manipulate earnings (Subrahmanyam, 2005). Moreover, it is also possible that firms with high earnings management tend to disclose less information in order to make earnings management less visible and harder to detect. This implies that a simultaneity relationship between disclosure quality and earnings management may be indicated.

Zhau and Lobo (2001) point out that there is a potential simultaneity bias in the disclosure quality and earnings management relationship. They argue that:

> Our hypothesis that corporate disclosure and earnings management are negatively related is based upon the relations of each of these variables to information asymmetry. Whether management's disclosure decision results from its desire to allow itself flexibility to manage earnings, or whether management's ability to manage earnings results from its choice of disclosure policy is unclear. Both of these cause and-effect relations are feasible, suggesting that corporate disclosure and earnings management decisions are likely to be jointly endogenously determined (p. 10).

In a related issue, and in spite of the fact that a negative relationship between disclosure quality (measured using analyst forecast accuracy) and earnings management is conjectured in the current study, it is also important to highlight that one of the incentives to manipulate earnings is to meet or beat analyst forecasts (e.g. Iatridis and Kadorinis, 2009; Hunton et al., 2006)[52]. It is presumed that reverse-causality or co-determination between disclosure quality and earnings management could occur. On top of that, such a complex association is not surprising given that endogeneity has been widely known as an endogenous variable (e.g.

[51] For example, Enron and WorldCom won several of disclosure award and at the same time as being involved in serious earnings fraud.

[52] Refer to Chapter Two for detail on the paper that demonstrates a positive relationship between earnings management and analyst forecasts.

Clinch and Verrecchia, 2011; Brown et al., 2011; Armstrong et al., 2010). Hence, as the next hypothesis in this project, the present study predicts that:

H1i: There is a simultaneous relationship between disclosure quality and earnings management.

In the light of the above discussion, it is understood that the relationship between disclosure quality and earnings management is not straightforward. The possibility of reverse causality and co-determination lead to an inconsistent OLS regression. Therefore, when examining the possible simultaneity relationship between disclosure quality and earnings management, the 2SLS regression is applied, as it has also been in Cornett et al. (2009) and Zhau and Lobo's (2001) studies.

3.7 Research methodology

3.7.1 Sample

The list of winners and those firms nominated by the IR Magazine Award was obtained from the Investor Perception Study research report, which is produced by the Cross Border Group Ltd. In the present study, the winners and first runner-ups for each award in the IR Magazine UK Award in the years 2005, 2006, 2007 and 2008 were selected to represent firms with a high quality of disclosure. The 2nd runner-ups were not selected for the following reasons: (1) Since this study was going to use a match-paired sample, a selection of control samples with multiple criteria might have been problematic when the main sample would have been large,

therefore, using the winners and 2nd runners up, the determinants of the control sample were deemed more feasible and realistic; (2) the number of the sample was sufficient and reasonable for the statistical analysis procedures to be conducted and (3) prior literature on disclosure quality normally uses a small sample due to the time consuming and labour intensive reading required by the content analysis method.[53] Most prior studies use a sample of around 100 firms: Ghazali and Weetman, 2006 (87 firms); Haniffa and Cooke, 2002 (139 firms); Boesso and Kumar, 2006 (72 firms); Eng and Mak, 2003 (158 firms); Chen and Jaggi, 2000 (87 firms); Raffournier, 1995 (161 firms) and Depoers, 2000 (102 firms). Therefore, the sample of 145 match-paired firms (290 firms) is greater than that used in most of the prior literature in this area. Although computerised content method analysis was used in this present study as a substitute for traditional content method analysis, the use of computerised content method analysis also requires the researchers to read line by line, to delete unnecessary items in each annual report and to manually transfer the total score for each keyword for all firms in the sample. In addition, the present study also used the traditional content method analysis that is based on the disclosure index, which is reported under the validity test of the forward-looking score in the appendix 6.

It is important to note that, even though the second runner-ups were not selected in our sample, in order to maintain consistency, these firms were disregarded as control firms in the period under observation. After the selection of the winners and first runner-ups had been made, the firms operating in financial and other highly regulated industries were removed

[53] Both computerised and traditional content method analysis generally need careful reading of the text, although the latter is undeniably demand greater time consumption over the first.

from the sample, since they are subject to specific regulations for disclosure and employ different types of reporting for accruals in their business activities. This approach is consistent with prior research on earnings management (e.g. DeFond and Jiambalvo, 1994; Klein, 2002) and disclosure quality (e.g. Ghazali and Weetman, 2006; Eng and Mak, 2003; Raffournier, 1995; Depoers, 2000; Chan and Jaggi, 2000). Following this, the control sample selection process was performed.

The match-paired sample is favourable in the sense that it controls (although not totally eliminates) the confounding effects of certain firm characteristics (e.g. industry, size and year), thus reducing the potential for the results to be driven by specific firm characteristics (Bartov et al., 2001). Moreover, features of these two different groups (winners and non-winners) could be clearly observed when the match-paired sample is applied. More importantly, the match-paired sample is potentially useful to control for endogeneity (Robert and Whited, 2011).

The control sample was comprised of the firms that matched the following criteria: (i) same year under observation, (ii) same industry, (iii) closest total assets or (iv) not nominated as a winner in the year under observation (according to the IR Magazine Award 2008, 2007, 2006 and 2005). Consistent with Boesso and Kumar (2007), who use a match-paired sample from the IR Magazine Award winners in the US, these stringent criteria were applied to control for the year, industry and size effect and to ensure that the firms in the test sample would not be

selected as the control sample in other years.[54] Given that the IR Magazine Award is evaluated based on the previous years' firm performance in investor relations activities, data lagged by one year was used in this study. [55]The final sample can be illustrated as below:

Table 3-1: Number of match-paired samples (winners and non-winners of the IR Magazine Award during the years 2005-2008)

Year	Annual Report	IR Award Winners	IR Award Non winners
2005	2004	43	43
2006	2005	43	43
2007	2006	42	42
2008	2007	42	42
Total		170	170

[54] The t-test was conducted to check the mean differences for total assets in both winner and non-winner groups. Results show that there is a significant difference between the means for these two groups at $p<0.01$. Nonetheless, it is argued that finding a perfect match is nearly impossible. This finding is consistent with the Peasnell et al. (2007) study that used US IR AWARD as a proxy for investor relation activities. Specifically, in their match-paired sample, they acknowledge that there is a huge significant difference in firm size in the winner and non-winner groups at $p<0.01$. However, it is also worth noting that other criteria, such as industry and year, are used in determining the control sample. At least this will help to alleviate the weaknesses in the sample selection choice, to a certain extent.

[55] The present study employed contemporaneous data for earnings management, corporate governance and disclosure. We noted that endogeneity, due to simultaneity, can be partially solved using lagged independent variables (Li, 2011). Nevertheless, the current study relies on the Brown et al. (2011) study, which shows that corporate governance data is subject to a stickiness issue. Therefore, the endogeneous nature of contemporaneous data is likewise contaminated in lagged data. It is also acknowledged that the disclosure policies of a company are rarely changed. We suggest that future research could compare the effect of using both lagged and contemporaneous in disclosure quality and corporate governance research, so that the implications of stickiness data could be better explained.

Table 3-2: The sample selection process

	IR 2008	IR 2007	IR 2006	IR 2005
Total Winners and 1st Runner-ups	**57**	**57**	**57**	**63**
Financial and Highly Regulated Industries (e.g. Banking Industry, Investment company, Investment Entity, Life assurance, Off shore investment companies & funds, Real estate, Specialty and other finance, Other financial and Mining)[56]	(15)	(11)	(11)	(16)
Annual report not available *	(0)	(4)	(3)	(4)
Identified winners	42	42	43	43
Match with Non-Winners (control sample)	42	42	43	43
Total firms (Pool = 340)	**84**	**84**	**86**	**86**
Exclude:				
Industries less than 6 firms**	(14)^	(12)^	(14)^	(10)^
Total firms (Pool = 290)#	**70**	**72**	**72**	**76**
Missing data for Analyst Forecast Accuracy	(4)^	(2)^	(18)^	(12)^
Total firms (Pool = 254)##	**66**	**70**	**54**	**64**

* The annual reports of these companies are not available due to (1) merger and acquisitions or (2)the annual report is unavailable/ not found although several trials have been undertaken.

** Industries with less than six firms represented will be deleted from the sample because it is necessary to calculate the coefficient for the earnings management calculation based on industries with six or more firms.

^ including the respective match-paired firms

When no data for analyst forecast accuracy is employed in the model, a pool data comprise of 290 firms was used in the regression.

When analyst forecast accuracy is used in the model, the pool data comprise of 254 firms were used in the regression.

Notes: Out of 145 match-paired firms, 8 firms (2008 = 2 firms, 2007= 3 firms, 2006= 1 firms, 2005= 2 firms) were matched with firms from (a) same year of observations, (b) nearest total assets, (c) not nominated as winners during the year under observation (d) different group of industries (due to limited options in the selection of the best match-paired firms from the same industry).

Out of 170 match-paired firms, 12 IR Award winners (2008 = 4 firms, 2007= 3 firms, 2006= 2 firms, 2005= 3 firms) were matched with firms from (a) same year of observations, (b) nearest

[56] Consistent with the prior study in this area (e.g. Lapointe-Antunes et al., 2006), financial and highly regulated industries are excluded from the sample due to the different nature of reporting accruals in their financial reporting.

total assets (c) not nominated as winners during the year under observations (d) different groups of industries (due to limited options in the selection of the best match-paired firms from the same industry). However, an underlying problem is that it is extremely difficult to find a perfect match for firms in certain industries (e.g. telecommunication, healthcare and technology). The same problem occurred in Huijgen and Lubberinks' (2005) UK studies, which used a match-paired sample in their research on accounting conservatism and litigations. Due to limited options in the selection of the perfect match-paired firms in the same industry, and following Huijgen and Lubberink (2005), the present study selects firms from different industries (as the control sample for 12 of the firms, which is equivalent to 7% of the whole sample)[57]. It is argued that the differing industries of these 7% firms will not introduce bias into the result, given that the number of firms affected is considerably small. Moreover, these 12 firms are similar to their match-paired firms in terms of size and year of observations. Hence, the different types of industry could be alleviated by the assumption that they are operated in the same economic scale and accounting environment and, thus, have homogeneous economic and accounting effects in general.

Some people may argue that the sample must be completely homogenous in nature. The inclusion of firms from FTSE 100, FTSE 250, FTSE All Share and a few from AIM All Share might create a heterogeneous dataset Nevertheless, it is important to consider several factors before any conclusion can be made.

[57] In the case the perfect matched pair is not found, the match-paired is search among the firms in the (1) similar supersector, or (2) similar industry, or (3) others industry (but nearest to the industry types of the respective IR winners).

It is widely believed that the sample selected must reflect the whole population under study. Therefore, if the sample is only comprised of firms from FTSE 100 and FTSE 250, the result would be biased towards large firms and unable to represent the response of the whole population. The inclusion of small firms will make the sample universal. Moreover, the match-paired sample that has been used in this study controlled for the firm's size, industry and year of observations. In this instance, the firms from AIM All Share were matched with other firms from AIM All Share. This procedure was performed in order to create balance and reduce bias in the sample. Furthermore, additional testing using GLS regression was performed on a sample from which the AIM All Share firms were excluded. It is worth noting that the result is qualitatively the same, even after the exclusion of small firms in the sample. In addition, the number of AIM All Share firms in the sample is very small and insignificant.

Consistent with the industrial classification that is supplied by DataStream & Worldscope, The Industrial Classification Benchmark (ICB) is used to perform the match-paired selection process and the earnings management calculation related to the coefficient parameters. The ICB comprises four tiers of industry classification: (1) Industries, (2) Supersectors, (3) Sectors and (4) Subsectors. It is used by most of the exchanges in the world including the London Stock Exchange and the New York Stock Exchange.

Table 3-3: The sample distribution according to supersector classification as defined by the Industrial Classification Benchmark (ICB)

Supersector	Number of firms (N=340)
Consumer goods	29
Consumer services	75
Healthcare	22
Industrials	96
Oil and gas	30
Technology	37
Telecommunication	19
Utilities	20
Basic Material	12
Total	**340 firms = 170 match-paired firms**

Table 3-4: The sample distribution according to supersector classification as defined by the Industrial Classification Benchmark (ICB)

Industry	Number of firms (N=290)
Consumer goods	24
Consumer services	75
Healthcare	13
Industrials	96
Oil and gas	30
Technology	37
Telecommunication	4*
Utilities	11
Total	**290 firms = 145 match-paired firms**

*There are 6 firms categorised under "telecommunication industry" in the year 2005, hence, these firms are entitled to be included in the current study given that the category has enough members to calculate the coefficient for earnings management proxy (minimum is 6). All these companies were used to calculate the coefficient for "telecommunication industry" in that particular year. Nevertheless, two of these companies were matched with firms from other industries that are not included in the analysis (where the number of firms in the other industries is below than 6). Hence, to ensure consistency of the matched pairs, these two telecommunication companies were excluded from the analysis, leaving only four remaining telecommunication firms in the dataset.

Table 3-5: Company breakdown based on number of awards received[a]

YEAR	TOTAL AWARD CATEGORIES	TOTAL AWARDED COMPANIES (NON-UNIQUE)	TOTAL AWARDED COMPANIES (UNIQUE)	TOTAL AWARDED COMPANIES (UNIQUE EX-REG)	TOTAL AWARDED COMPANIES (UNIQUE EX-REG, EX-6IND)	TOTAL AWARDS BREAKDOWN: NO OF UNIQUE COMPANIES RECEIVING 1, 2, 3, 4, 5 OR MORE					
						AR=1	AR=2	AR=3	AR=4	AR=5	AR>5
2005	48	96	63	43	38	34	8	0	0	0	1
2006	50	100	57	43	36	29	8	4	0	1	1
2007	48	96	57	42	36	33	5	0	1	1	2
2008	47	93[b]	57	42	35	30	6	3	2	1	0

TOTAL AWARD CATEGORIES = Total number of IRAWARD categories per year; **TOTAL AWARDED COMPANIES (NON-UNIQUE)** =Total non-unique companies (IR Award winners and first runner-ups) per year; **TOTAL AWARDED COMPANIES (UNIQUE)** =Total unique companies (IR Award winners and first runner-ups) per year, including firms in highly regulated industries and firms with missing annual reports; **TOTAL AWARDED COMPANIES (UNIQUE EX- REG)** = Total unique companies (IR Award winners and first runner-ups) per year, excluding financial firms and firms with missing annual reports; **TOTAL AWARDED COMPANIES (UNIQUE EX- REG, EX-6IND) =** Total unique companies (IR Award winners and first runner-ups) per year, excluding financial firms, firms with missing annual reports and firms in industries with less than 6 firms (for the purpose of calculating the earnings management coefficient); **TOTAL AWARDS BREAKDOWN =** breakdown of the unique companies that received either 1, 2, 3, 4, 5 or more awards in a year, based on the sample in the total award companies unique ex-reg column; Note **a =** Population comprised of all listed companies and domiciled in the UK; Note **b** = only one of the awards categories is declared the winner (and no information about the first runner up is mentioned].

Table 3-6: Company breakdown based on award categories

YEAR	SAMPLE	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18
2005-8	170	4	7	7	3	5	4	6	1	4	7	4	4	3	5	4	5	8	2
2005	43	1	1	2	1	1	1	1	x	0	1	1	x	1	2	0	2	2	1
2006	43	1	2	1	1	2	1	2	x	2	2	1	2	1	2	2	1	2	0
2007	42	1	2	2	1	2	1	2	0	1	2	1	x	1	1	1	0	2	1
2008	42	1	2	2	0	2	1	1	1	1	2	1	2	0	0	1	2	2	0
YEAR	**SAMPLE**	**A19**	**A20**	**A21**	**A22**	**A23**	**A24**	**A25**	**A26**	**A27**	**A28**	**A29**	**A30**	**A31**	**A32**	**A33**	**A34**	**A35**	
2005-8	170	4	4	5	5	1	4	7	6	1	8	4	1	4	1	4	1	2	
2005	43	1	1	X	x	x	x	2	2	x	2	1	0	2	1	2	1	x	
2006	43	1	1	2	2	x	x	2	2	x	2	1	1	2	x	2	x	2	
2007	42	2	1	1	2	0	2	1	1	x	2	2	0	x	x	x	x	x	
2008	42	0	1	2	1	1	2	2	1	1	2	x	x	x	x	x	x	x	
YEAR	**SAMPLE**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**B16**	**B17**	**B18**
2005-8	170	8	0	8	8	8	8	8	0	8	0	8	0	6	8	7	8	8	8
2005	43	2	0	2	2	2	2	2	0	2	0	2	0	1	2	1	2	2	2
2006	43	2	0	2	2	2	2	2	0	2	0	2	0	1	2	2	2	2	2
2007	42	2	0	2	2	2	2	2	0	2	0	2	0	2	2	2	2	2	2
2008	42	2	0	2	2	2	2	2	0	2	0	2	0	2	2	2	2	2	2
YEAR	**SAMPLE**	**B19**	**B20**	**B21**	**B22**														
2005-8	170	8	6	2	2														
2005	43	2	2	2	x														
2006	43	2	2	X	2														
2007	42	2	2	X	x														
2008	42	2	x	X	x														

YEAR = year of study; **SAMPLE** = Total unique companies (IR Award winners and first runner-ups) per year excluding financial firms and firms with missing annual reports (before excluding industries with less than 6 firms in a year for the earnings management calculation); **A1-A35** = IRAWARD categories; **A1** = Grand Prix for Best Overall Investor Relations; **A2** = Grand Prix for Best Investor Relations by a FTSE 250 company; **A3** = Grand Prix for Best Smaller Company Investor Relations; **A4** = Best Investor Relations officer at a FTSE 100 company; **A5** = Best Investor Relations officer at a non-FTSE 100 company; **A6** = Best Corporate Literature/annual report by a FTSE 100 company; **A7** = Best Corporate Literature/annual report by a non-FTSE 100 company; **A8** = Best Narrative Reporting; **A9** = Best Use of the Internet/technology/website for Investor Relations by a FTSE 100 Company; **A10** = Best Use of the Internet/technology/website for Investor Relations by a non-FTSE 100 Company; **A11** = Best Results Meetings and Analyst Briefings by a FTSE100 companies; **A12** = Best Results Meetings and Analyst Briefings by a non-FTSE100 companies; **A13** = Best Communication of Shareholder Value Creation; **A14** = Best Crisis Management; **A15** = Best Investor Relations During a Takeover/corporate transaction; **A16** = Most Progress in Investor Relations by a FTSE 100 Company; **A17** = Most Progress in Investor Relations by a non-FTSE 100 Company; **A18** = Best Disclosure Practice; **A19** = Best Corporate Governance; **A20** = Best Practice of Corporate Social Responsibility; **A21** = Best IR by a CEO at a FTSE 100 Company; **A22** = Best IR by a CEO at a non-FTSE 100 Company; **A23** = Best IR by a CFO at a FTSE 100 Company; **A24** = Best IR by a CFO at a non-FTSE 100 Company; **A25** = Best IR for a New Issue; **A26** = Best IR by an AIM Company; **A27** = Special award for excellent in IR from a foreign company on AIM; **A28** = Best UK Company IR in the US market; **A29** = Best Use of Virtual Conferencing for Investor Relations; **A30** = Best North American IR in the UK Market; **A31** = Best use of the internet for investor relations; **A32** = Best board communication; **A33** = Best investor relations to the retail shareholders; **A34** = Best communication to the financial media; **A35** = Best operating and financial review; **B1-B22** = IRAWARD (SECTOR) categories- the winners were determined based on total point scores (excluding scores from several awards, e.g. (i) best crisis management, (ii) best IR during a corporate transaction, (iii) best IR by an AIM company, (iv) best IR for a new issue, (v) best narrative reporting, (vi) best UK company IR in the US market); **B1 =** Aerospace & Defence**; B2 =** Banks/Financial General**; B3 =** Construction & Materials; **B4 =** Food & Beverages/Tobacco; **B5 =**Healthcare equipment & services; **B6 =** House, leisure & personal goods; **B7 =** Industrial engineering/industrial general/automobiles & parts; **B8 =** Insurance; **B9 =** Media; **B10 =** Mining/basic resources; **B11 =** Oil and Gas; **B12 =** Real estate; **B13 =** Retailers; **B14 =** Support services; **B15 =** Technology-hardware; **B16 =**Technology-software & services/electronic & electrical equipment; **B17 =** Telecommunication; **B18 =** Travel and leisure/ industrial transportation; **B19 =** Utilities; **B20 =** chemicals; **B21 =** engineering and machinery; **B22 =** Leisure goods and gaming; **x** = This award category was not offered in that particular year. Notes: Population is comprised of all listed and domiciled companies in the UK.

Table 3-7: Company breakdown by FTSE group

YEAR	**2005**	**2006**	**2007**	**2008**
	WINNERS	WINNERS	WINNERS	WINNERS
FTSE100	23	26	27	25
FTSE250	15	14	11	13
OTHERS*	5	3	4	4
TOTAL	**43**	**43**	**42**	**42**
	NON-WINNERS	NON-WINNERS	NON-WINNERS	NON-WINNERS
FTSE100	20	22	24	25
FTSE250	18	18	14	13
OTHERS*	5	3	4	4
TOTAL	**43**	**43**	**42**	**42**

WINNERS = Winners and first runner-ups of IR Award; **NON-WINNERS** = Non-Winners of IR Awards in the year 2005-2008 (control firms); *** OTHERS** includes FTSE ALL SHARE, FTSE AIM ALL SHARE, FTSE FLEDGING, FTSE TECHMARK ALL SHARE.

Table 3-8: Company breakdown based on industry

SUPERSECTOR	**NUMBER OF FIRMS**
CONSUMER GOODS	29
CONSUMER SERVICES	75
HEALTHCARE	22
INDUSTRIALS	96
OIL AND GAS	30
TECHNOLOGY	37
TELECOMMUNICATION	19
UTILITIES	20
BASIC MATERIAL	12
TOTAL	**340 FIRMS = 170 MATCH PAIRED FIRMS**

Table 3-9: T-test and Mann-Whitney U test on forward-looking disclosure

			t-test			Mann-Whitney U test		
YEAR	GROUPS (0,1)	n	MEAN FLSCORE	t	sig	MEDIAN FLSCORE	z	sig
2005	0	9	150.77			263.5		
	1	34	109.15	1.5401		682.5	1.956	
2006	0	14	127.35			341		
	1	29	101.93	1.2185		605	0.855	
2007	0	9	148.33			184.5		
	1	33	146.42	0.0527		718.5	-0.276	
2008	0	12	175.25			316		
	1	30	120.66	1.6493		587	1.615	
2005-8	0	44	149.5			4264.5		
	1	126	119.99	2.0104		10270.5	1.788	
					**			*

Groups (1,0) = [1 if firms won one IR Award in a year,0 if firms won more than 1 IR Award); **n** = number of samples in each group per year; **MEAN FLSCORE** = Differences in mean FLSCORE is calculated using the t-test; **MEDIAN FLSCOREn** = Differences in median FLSCORE is calculated using the Mann-Whitney U test; **FLSCORE** is calculated using the number of forward-looking statements in the firm's annual report; **sig **** and ***** denotes that the p-value is significant at 0.05 and 0.010, one-tailed respectively. The tests were conducted using 340 firms (170 match paired firms).

The present study also checks for the significant difference of the forward-looking disclosure score (FLSCORE) between (i) firms that won one IRAWARD in a year and (ii) firms that won more than one IRAWARD in a year (see Table 3-9). Therefore, the sample was split into two groups. We then performed the t-test and the Mann Whitney U-test (see Table 3-9). We find that firms that won more than one award (0) consistently show a higher mean of forward-looking score (FLSCORE) compared to the firms that won only one award in a year (1), in each individual year, although both tests show that the mean differences between these two groups are insignificant. When we pool our data (2005-2008), we note that both the t-test and the Mann Whitney U-test report a significant difference between the means of the forward-looking disclosure (FLSCORE) for these two groups at $p<0.05$ and $p<0.1$ respectively. This indicates that firms that won more than one IRAWARD disclose more forward-

looking information in their annual report than firms that receive only one IRAWARD in a year.

3.7.2 Year of observations

Since most of the prior studies are US based (e.g. Jo and Kim, 2007; Zhau and Lobo, 2001), it is useful to use the UK capital market as the sample in this study as the UK is one of the most important capital markets and there have been rigorous efforts by UK firms to improve their IR disclosure the past 20 years (Marston, 2008). Although Iatridis and Kadorinis (2009) based their research on UK data, their research was subject to certain limitations (e.g. a small number of control variables and only one single measurement of earnings management). Moreover, the availability of UK data makes this research feasible. If the current research had intended to focus on other countries (e.g. Malaysia, Egypt or South Africa), the data on analyst forecast accuracy is not available or very hard to collect, making the research difficult to carry out. Because other countries have no specific databases for research purposes, the data collection process would take longer than the timeframe allowed for the completion of this study.

This study concentrates on the disclosure quality of UK firms in 2004-2007. These specific years of observation have been selected for several reasons. Given that most of the data is hand collected (e.g. corporate governance, narrative disclosure in the annual report, and earnings management), the years 2004-2007 are the most recent to when this research was undertaken and the most practical for our purpose within

the limited timeframe of the study. More importantly, the selection of years is primarily influenced by the introduction of the Combined Code 2003, which was largely based on the Higgs and Smith Report (2003). 2004 was used as a starting point for the data collection process since, following the introduction of the Combined Code 2003, the disclosure of certain firms' governance information is now required (e.g. the number of board meetings and audit committee meetings).

3.7.3 Disclosure quality measures

A manager's disclosure decision is aimed at reducing the information asymmetry gap between agent and principal. Therefore, disclosure quality proxies that are related to the financial analyst, namely the IR Magazine Award, the forward-looking statement in the annual report and the analyst forecast accuracy, were employed in the current study. It has already been noted that financial analysts have been viewed as sophisticated users of a company's disclosure (e.g. Balsam et al., 2002) and an effective disseminator of the company's information (Gavious, 2007).

The IR Magazine Award is an external measure for disclosure quality, as it depends on the analyst's perceptions of a firm's investor relations activities in a year. By contrast, the forward-looking information is mainly based on information from the annual report; hence it can be classified as an internal proxy for disclosure quality. The analyst forecast accuracy, which is the third proxy for disclosure quality, is indirectly related to the first and second proxy, given that an analyst is expected to refer to both the firm's

investor relations activities and forward-looking information when projecting a firm's earnings per share.

Data on the IR Magazine Award was requested from the event organiser at The Cross Border Group, while the data on the forward-looking information was traced from the companies' annual reports. The financial data related to the analyst's forecast accuracy and control variables were downloaded from *DataStream*, while the corporate governance attributes were manually collected from the companies' annual reports.

3.7.3.1 The Investor Relation Awards (IRAWARD)

The IR Magazine Award was used as one of the disclosure quality proxies in this study. The IR Magazine Award is an annual event that is organised by Cross Border Group Ltd to acknowledge the firms with the best investor relationships throughout the year. The Cross Border Group Ltd assigned the task of carrying out the investigation of analyst perceptions of firms' investor relations activities to Mary Maude Research. The event was conducted in various regions around the world including the United States, Norway, Canada, the UK and Asia. For the purpose of this study, the IR Magazine Award from the UK will be used. None of the prior research in this field has used the IR Magazine Award in the UK as a proxy for disclosure quality. Only Boesso and Kumar (2007) are known to have used the IR Magazine Award in the US as a proxy for disclosure quality.

The winners of the IR Magazine Award are selected based on who has the highest ranking/score from the respondents on the company's investor relations activities. The respondents are comprised of sell-side analysts, buy-side analysts and the portfolio managers in the UK. The respondents were asked about their perception of the company's investor relations activities over the last year. In other words, in the selection of the IR Magazine Award winners in 2008, the company's investor relations in the year 2007 are to be evaluated (lagged by one year). Therefore, since this study focuses on the IR Magazine Award Winners for the years 2008, 2007, 2006 and 2005, the data for the respective companies for the years 2007, 2006, 2005 and 2004 were taken into account.

For the IR Magazine Award in the years 2005, 2006, 2007 and 2008 there were, respectively, 648, 742, 632 and 650 respondents. Telephone interviews were conducted by Mary Maude Research, each of which took around 10-20 minutes. The questionnaire was comprised of three main sections. The first section was about the respondent profiles. The second section was related to the issue of the current level of disclosure by UK firms. The third section concentrated on the winner nominations. Each respondent was requested to nominate three firms for each award by ranking. The score was then assigned to the firms that were nominated. The total score for each company was then calculated and the winners were determined based on this score.

There are two main categories in the IR Magazine UK Award. The first award mainly focuses upon several aspects of investor relations (between companies and outsiders) and the second is The Sector Award, which concentrates on the companies with the best investor relations for each sector. The list of IR Magazine Award in the year 2005-2008 is attached in Appendix 3.

There are several reasons why the current research intends to use the IR Magazine UK Award as a proxy for disclosure quality. First and foremost, the IR magazine UK award relies on analyst perceptions of a firm's disclosure policy in determining the winners. The analyst is one of the key players in the capital market and understands more about the value of the information provided by the company (e.g. Barker, 1998), is able to detect earnings management (Yu, 2008; Gavious, 2007; Liu, 2005), has expertise in evaluating a firm's disclosure policy (e.g. Healy and Palepu, 2001; Gavious, 2007; Lang and Lundholm, 1993) and is potentially effective in reducing information asymmetry (e.g. Ali et al., 2008; Roulstone, 2003). The analyst's ability to process and disseminate the information is undeniable. Therefore, for the purpose of this study, it is relevant to use their judgement, exercised in nominating the firms with the best investor relations, to provide a proxy for disclosure quality.

Secondly, the IR Magazine Award covers many important IR components of the firms including narrative reporting; corporate literature; internet reporting; virtual conferencing; corporate governance practice; disclosure practice; corporate social responsibility practice; annual reports; analyst meetings and briefing; information on

the shareholder's value; the efficiency of the IR officer, the CEO and the CFO with respect to the firm's capability in delivering information; and much more. It is important to highlight that most of the annual report awards (e.g. NACRA) or analyst ratings (e.g. AIMR Ratings) are solely dependent on the quality of the annual report *per se* as a base of evaluation. Therefore, the IR Magazine Award provides a wider scope in assessing the quality of a firm's disclosure.

Thirdly, the winners of the IR Magazine Award vary considerably; they range from big firms in the FTSE 100 to small firms from the FTSE AIM All Share Index. Therefore, this proxy is not biased towards large firms. The inclusion of firms from the All Share and AIM All Share category creates a balance in the sample because it accounts for the behaviour of small firms

Fourthly, the consensus among financial analysts and fund managers (experts in companies' disclosure policy and earnings management) in the selection of The IR Award winners is more credible than the self-developed disclosure index, which depends on only one researcher's evaluation and judgement.

Measurement for IRAWARD

In the current study, the dichotomous method (scoring "1" or 0) has been used to differentiate between the IR Magazine Award winners and non-winners. Consistent with Bauer and Boritz (2009), the winners have been assigned a score of one (1) and the non-winners have been coded as zero (0).

3.7.3.2 Forward-looking disclosure (FLSCORE)[58]

A prior study argues that forward-looking information is one of the value-relevance information elements (Morton and Neill, 2001). Using a sample of 106 US firms, Morton and Neill (2001) report that forward-looking information is highly relevant after a corporate restructuring. Moreover, forward-looking disclosure is value relevant in the sense that it is associated to the share price (Lundholm and Myers, 2002) and it increases analyst forecast accuracy (Barron et al., 1999). Hence, forward-looking disclosure is embedded with predictive information about a company's activities that make it possible to reduce earnings uncertainty in the future (Lundholm and Myers, 2002; Miller and Piotroski, 2000). Prior research also shows that voluntary disclosure is effective in reducing the information asymmetry in the principal-agent relationship (Grüning and Ernstberger, 2010).

Agency theory claims that disclosure is one of the agency costs that reduce information asymmetry between agents and principles (Jensen and Meckling, 1976). Prior studies have highlighted that information asymmetry will be reduced with the analyst's intervention (e.g. Roulstone, 2003; Ali et al., 2008). Therefore, it is important to focus on the information that the analyst wants. Deegan and Rankin (1997) and Barker (1998) find that analysts favour forward-looking information on the capital market, since it is potentially capable of predicting future earnings. Moreover,

[58] Narrative disclosure is treated as a voluntary disclosure, given that such information is based on the manager's discretion (Heitzman et al., 2010; Williamson and Lynch-Wood, 2008), although the requirements for narrative disclosure are stated in the Business Review (BR) or Operating and Financial Review (OFR).

forward-looking information is also viewed as one of the most important items in the disclosure index (Francis et al, 2008). In a related vein, Botosan (2000) finds that the cost of capital is inversely related to forward-looking disclosure. This signals its predictive ability, its potential for reducing information asymmetry and, subsequently, its importance in reducing the cost of capital.

The present research focuses on the forward-looking disclosure in the annual report as a second proxy for disclosure quality. The use of annual reports as a source for ascertaining a firm's disclosure quality is inspired by Lang and Lundholm (1993) who report that the annual report is a reliable proxy for measuring a firms overall disclosure policy. Moreover, Botosan (1997) argues that the quality of any forms of disclosure by the firms can be generalised to the whole firm's disclosure pattern.

One may argue about the reliability and accuracy of using forward-looking information as a proxy for disclosure quality, since this information is not audited and is voluntary in nature. It is important to note that other types of voluntary disclosure proxies in the disclosure literature (e.g. AIMR Ratings, CIFAR, management earnings forecast, disclosure index) suffer from noise and bias, including credibility and subjectivity issues (as discussed in appendix 1). Therefore, it is impossible to find a voluntary disclosure which is completely free from bias.

This study also acknowledges that the use of the total number of forward-looking statements in the annual report (as a proxy) may raise an issue of quantity versus

quality of disclosure. In this instance, we rely on Kent and Stewart (2008, p. 651) who state that "more extensive disclosures are likely to be more informative than brief disclosures and are, therefore, an indicator of greater transparency". In the same vein, based on Botosan's (2004) argument that quantity and quality are inseparable and hard to measure, Beretta and Bozzolan (2008, p. 335) point out that "the extent of disclosure (i.e., quantity) is an adequate measure of the quality of disclosure". The detection of forward-looking sentences in the annual report using computerised content method analysis in our study is consistent with Core (2001, p. 452) who proposed that "the improvement in disclosure quality also need to be developed by importing techniques in natural language processing from fields like computer science, linguistic and artificial intelligence".

Additionally, some may argue that it is not possible to use forward-looking information as a proxy for disclosure quality while ignoring other types of disclosure, such as environmental disclosure and employee information. In this instance, Botosan (1997) argues that one form of company disclosure can be generalised to the whole firm's disclosure policy. However, this factor is taken into account in the FLSCORE validity test, which will be explained in this section, given that it is essential to check on the reliability and validity of the FLSCORE before using it.

Measurement for FLSCORE

For the second measure of disclosure quality, the present study focuses on the forward-looking disclosures in the annual report. The computerised content method

analysis was used, whereby the specific forward-looking keywords were to be detected in the companies' annual reports using N6 Software. The list of keywords established by Hussainey et al. (2003) is appropriate to the present study, since the keyword selection was developed based on the synonyms of forward-looking keywords that are widely used in annual reports and analyst reports.[59] See Appendix 4 for the list of forward-looking keywords suggested by Hussainey et al., (2003)[60].

In order to obtain the forward-looking score, all the companies' annual reports were downloaded in PDF format from the northcote.co.uk website. Then, the annual reports were manually transformed into text files, since N6 is unable to read the documents in PDF format. After that, mandatory disclosure and financial information in the annual reports were deleted[61] because they are not related to forward-looking information (Hussainey et al., 2003). Next, the annual reports were imported to the N6 programme using the drop down Menu; (Documents - import text file as documents).

Following this, the most appropriate "unit of preference" was chosen. The unit of preference determines the unit of analysis that the users want. There are three options available; (i) a line, (ii) a sentence or (iii) a paragraph. This function is available in the drop down Menu; (Project-Preference-Text unit type). In this instance,

[59] Hussainey et al. (2003) identify the forward-looking keywords by spotting forward-looking keywords related to prediction and forecast that commonly used in the annual report. They then searched for the synonyms of those forward-looking keywords and measure their association with forward-looking information by using manually read 30 random sentences for each forward-looking keyword.

[60] To name a few of forward-looking keywords used in Hussainey et al. (2003) includes accelerate, anticipate, await, envisage, estimate, eventual, expect, forecast, forthcoming, outlook and predict.

[61] Following Hussainey et al. (2003), several sections in the annual report were deleted including corporate governance statement, the table of contents, the financial statements, the notes to the accounts and directors report.

Hussainey et al. (2003) claim that a sentence is the unit of preference, since the intended meaning of forward-looking information is reasonably conveyed in a sentence rather than a line or a paragraph. Thus, in line with Hussainey et al. (2003), a sentence was chosen as “unit of preference”.

After that, the search function was used and forward-looking keywords were entered one-by-one into N6. This function is performed in the drop down Menu; (Documents- Text search- All documents). There are three options available in the text search function namely; (i) case sensitive (ii) search for whole word only (iii) special function. The “search for whole word only” function was selected in order to avoid the selection of unintended sentences. For example, when searching for the keyword, “Anticipate”, this function prevents N6 from selecting keywords such as “were anticipated” or “was anticipated”, which have different meanings and contexts from the original keyword. At any one time, only around 40 annual reports can be imported to N6, therefore this process was repeated 8 times.

The N6 programme produced a search result for each keyword by company. The score for each keyword for each company was then collected and counted. The total score represents the number of forward-looking sentences in the companies’ annual report. Here, for example, is report for the keyword “Next”, from J Sainsbury PLC’s annual report for the financial year 2007:

Table 3-10: Example of the report released by N6 Nudist software

+++ Text search for 'next' +++ Searching document A37 Sainsbury... As a result the number of stores operating this service will reach 200 by March 2010 and we expect sales to more than double over the NEXT three years. In the NEXT financial year the Group is targeting incremental space growth of around two per cent. In the NEXT financial year the Group expects to deliver an underlying cash flow neutral position after adjusting for the reversal of the £150 million working capital timing differences. Capital expenditure is forecast to be in the region of £750 million for the NEXT financial year. … … +++ 18 text units out of 541, = 3.3%

N6 selects the sentences which contained the word "Next", and this keyword was highlighted using capital letters. At the end of the report for each company, the total number of sentences which contain the "Next" keyword is provided. For Sainsbury's 2007 annual report, the number of sentences with the "Next" keyword is 18. The total number of sentences for all keywords represents the score for forward-looking disclosure by the company. For Next PLC, the process of obtaining the score for the "Next" keyword in the annual reports was performed manually using a PDF search. [62]

Validity test of the forward-looking score

In the first validity test, a disclosure index, which was comprised of a comprehensive set of voluntary disclosures in the annual reports, was developed. The disclosure

[62] The present study acknowledges that one of the limitation in Hussainey et al. (2003) technique in detecting forward-looking information in the annual report is when it is failed to consider the tone of forward-looking information. Schleicher and Walker (2010) argue that it is crucial to consider the effect of different tone of forward-looking disclosure because it is largely subject to manipulation by managers. Therefore, forward-looking disclosure can possibly have a positive and negative tone, which may contribute to the firm's economic consequences at different extent.

index, which consisted of 101 items, was divided into these categories: (A) General corporate information, (B) Company Strategy, (C) Capital Market Data, (D) Financial Ratio, (E) Research and Development, (F) Future Prospects, (G) Social Reporting, (H) Environmental Reporting, (I) Employee Information, (J) Products or Services Information, (K) Supplier Information and (L) Others. This index was developed based on the disclosure index that is extensively available in the prior literature (e.g. Lapointe-Antunes et al., 2006; Haniffa and Cooke, 2002; Ghazali and Weetman, 2006) as well as in consideration of the firms' annual reports and current developments in voluntary disclosure (e.g. Global Reporting Initiatives).

Forty annual reports were randomly selected from the list of sample firms. The un-weighted disclosure index was used to score each firm. The disclosure index was cross-checked with the annual report using traditional content method analysis. The dichotomous method was used in the scoring process: the companies obtained a score of "1" if they provided the information as stated in the disclosure index, and a score of "0" if otherwise.

The Pearson correlation between FLSCORE and Disclosure Index score was calculated and the result reveals that the correlation coefficient between these variables is 67.46%, ($p<0.01$). Further analysis using Spearman's correlation reports that the correlation between FLSCORE and Disclosure Index score is significant at $p<0.01$, with the correlation coefficient equivalent to 64.51%. The high correlation between these

two variables indicates the strong relationship between the FLSCORE and the Disclosure Index score.

A reliability test using Cronbach's Alpha was also performed to measure the internal consistency between FLSCORE and Disclosure Index score. In this regard, Pallant (2007) claims that a high reliability coefficient (0.60 and above) indicates that there are strong internal consistencies between two variables. The reliability coefficient of the Cronbach Alpha analysis of FLSCORE and Disclosure Index score was recorded at 0.7519, which is higher than the cut off point of 0.60 suggested by Pallant (2007).

Henceforth, the comprehensiveness of the forward-looking disclosure in a company's annual report could also be reflected to other types of disclosure, including environmental disclosure, employee information, products and services information and others. Therefore, the present study assumes that the N6 Score is valid as a proxy for disclosure quality since it is strongly correlated to the Disclosure Index Score when using the traditional content method analysis and highly reliable according to the Cronbach Alpha test. The full list of the disclosure index is available in Appendix 4.

Another test was performed by reading 30 sentences for several keywords that were randomly selected from the search results produced by the N6 Software. The result shows that 96.60% of the sentences referred to forward-looking information. This test confirms the ability of the N6 software to detect forward-looking information in the imported documents. Although it is not possible to completely eliminate the bias, it is

relatively low (around 3.4%). Moreover, demonstrates that the use of computerised content analysis provides a credible score with high comparability and consistency when compared to traditional content method analysis (Hussainey et al.2003, p. 276). At this stage, this research considered that the total number of forward-looking sentences in the annual report, detected using a computerised content method analysis, is relevant and reliable as a proxy for disclosure quality in this study. The full result is available in the Appendix 6.

1.7.3.3 Analyst forecast accuracy

It is a cornerstone of agency theory that the analyst's role is important as an effective disseminator of information. Therefore, the present study submits that analyst forecast accuracy is a reliable proxy for a firm's disclosure quality, given that it can reflect the firm's disclosure environment.

Prior literature proposes that analyst forecast dispersion can be a proxy for information asymmetry (Lang and Lundholm, 1996), and that a high quality of disclosure is associated with lower information asymmetry (e.g. Petersen and Plenborg, 2006; Brown et al., 2004; Coller and Yohn, 1997; Kim and Verrechia, 1994; Diamond and Verrecchia, 1991); hence, in the presence of a high disclosure quality environment, financial analysts will be able to predict earnings accurately (Byard et al., 2006).

A considerable amount of literature has been published on disclosure quality and analyst forecast accuracy (e.g. Bhat et al., 2006; Chiang, 2005; Ernstberger et al., 2008; Ertimur et al., 2007; Mensah et al., 2004; Barron et al., 1999; Ashbaugh and Pincus, 2001; Lang and Lundholm, 1996). Using AIMR Ratings as a proxy for disclosure quality, Lang and Lundholm (1996) demonstrate that firms with high analyst ratings have a higher accuracy of analyst forecast. In a related vein, Bhat et al. (2006) document that high disclosure settings can also be driven by corporate governance disclosure, which subsequently enhances the analysts' forecast accuracy. Their finding implies that the magnitude of corporate governance disclosure is informative in the sense that it complements the disclosure environment, which reduces analyst uncertainty in predicting firm's earnings.

The findings of Bhat et al. (2006) are in line with those of McEwen and Hunton (1999) and Hope (2003) who report that the use of accounting information improved the preciseness of analyst forecasts. Similarly, Ertimur et al. (2007) demonstrate that the financial analyst is able to predict earnings accurately for firms with value-relevance earnings. Consistent with Ertimur et al. (2007), Mensah et al., (2004) record that high accounting conservatism reduces the preciseness of analyst forecast accuracy. In other words, credible financial and non-financial disclosure carries a predictable value to the analyst forecast.

Ernstberger et al. (2008) highlight that analyst forecast accuracy is a reflection of a firm's disclosure, while Byard et al. (2006) and Roulstone (2003) point out that analyst

forecast accuracy is a reliable proxy for a firm's disclosure quality. Therefore, the level of analyst forecast accuracy is proficient in portraying the quality of information, supplied by the firms, that is available in the market; hence, it is basically a reliable proxy for disclosure quality.

Agency theory recognises the role of financial analyst intervention in disseminating company information to institutional and retail investors (Ali et al., 2008); thus, signalling that financial analysts are an agent in reducing information asymmetry and agency costs (Jensen and Meckling, 1976). Given that analysts' forecasts are one of the credible sources of information as far as the investors are concerned (Walther, 1997; Clement and Tse, 2003), and considering the expertise that analysts have in extracting companies' disclosure (e.g. Healy and Palepu, 2001; Lang and Lundholm, 1993; Byard et al., 2006; Balsam et al., 2002), the present study uses analyst forecast accuracy as one of the proxies for disclosure quality.

Measurement for analyst forecast accuracy

The list of options for measuring analyst forecast accuracy is much shorter than that for disclosure quality and earnings management. The basic requirement is to calculate the gap between the reported earnings per share (EPS) and the median forecast of EPS. As this has been widely practiced, is commonly acceptable and reasonably constructed in the prior literature, the current study does not attempt to change this measure. Following Lang and Lundholm (1996), Hope and Kang (2005) and Hope (2003), the analyst forecast accuracy is estimated as follows:

$$\textbf{Accuracy} = (-1) \left|\textbf{EPS}_t - \textbf{MEPS}_t\right| / \textbf{PRICE}_t$$

Where: EPS_t is earnings per share, $MEPS_t$ is the median forecast of earnings per share and $PRICE_t$ is the share price in period *t*, (share price at the beginning of the year). The data for analyst forecast accuracy was downloaded from IBES through *DataStream*.

3.7.4 Corporate governance measures

3.7.4.1 Audit committee characteristics

Inspired by Zaman et al. (2011), the present study measures audit committee characteristics in line with the Smith Report (2003) recommendation. In particular, audit committee independence was measured using a dummy; where "1" is coded if all of an audit committee's members are comprised of independent directors, and "0" if otherwise.[63] Concerning audit committee meetings: "1" is assigned if an audit committee meets at least 3 times in a year, and "0" if otherwise. In relation to audit

[63] With regard to the determination of independent directors, The UK Corporate Governance Code (2010, Para B. 1. 1) stated that:

> "The board should determine whether the director is independent in character and judgment and whether there are relationships or circumstances which are likely to affect, or could appear to affect, the director's judgement. The board should state its reason if it determines that a director is independent notwithstanding the existence of relationships or circumstances which may appear relevant to its determination, including if the director:
> - has been an employee of the company or group within the last five years
> - has, or has had within the last three years, a material business relationship with the company either directly, or as a partner, shareholder, director or senior employee of a body that has such a relationship with the company
> - has received or receives additional remuneration from the company apart from a director's fee, participates in the company's share option or a performance-related pay scheme, or is a member of the company's pension scheme
> - has close family ties with any of the company's advisers, directors or senior employees
> - hold cross-directorships or has significant links with other directors through involvement in other companies or bodies
> - represent a significant shareholder; or
> - has served on the board for more than 9 years from the date of their first election" (p. 12-13).

committee size, the firm is marked as “1” if the number of audit committee members is at least 3, and “0” is coded if the number of audit committee members is less than 3.

In relation to audit committee expertise, the information determining this variable was traced in the directors’ profile sections in the annual reports. Following Hoitash et al. (2009, p. 848), an audit committee member was determined to be financially literate if they hold any of the following (or similar) qualifications/positions: “certified public accountant, chief financial officer, principal financial officer, chief accounting officer, principal accounting officer, treasurer, auditor or vice president of finance”. Hoitash et al. (2009) depend on the Securities and Exchange Commission (SEC) Final Rule when defining audit committee expertise. The present study believes that this definition of audit committee expertise is in line with The UK Corporate Governance Code (Para 3.C.1) which recommends that “at least one member of the audit committee member has recent and relevant financial experience” (p. 19). The UK Corporate Governance Code definition is otherwise ambiguous and the utilisation of Hoitash’s definition is a fair way of interpreting their recommendations concerning audit committee expertise. After the audit committees that had financial expertise had been identified, the data was then classified into dummy variables (1 = if the number of audit committee members with financial expertise is greater than 1, and 0 = otherwise), in accordance with the recommended benchmark defined in the Smith Report (2003).

3.7.4.2 Board characteristics

Board independence was measured using the percentages of independent directors on the board (excluding the chairman). The UK Corporate Governance Code (2010) suggests that half of the board must be comprised of independent directors (excluding the chairman)[64]. Numerous corporate governance studies, including Felo et al. (2003), Nelson et al. (2010) and Kent et al. (2010), measure board independence based on the percentages of independent directors on the board. With respect to the board meeting frequency, it was measured using the number of board meetings held during the year, in accordance with Xie et al. (2003) and Nelson et al. (2010). Regarding the board size, it was represented by the total number of board members, following Nelson et al. (2010).

3.7.5 Earnings management measures

Given that accruals have been shown to be the most popular method of earnings management amongst managers (Goncharov, 2005), the measurement of earnings management related to accruals was used in the current study. In particular, discretionary accrual was estimated using the Modified Jones Model (Dechow et al., 1995). This approach resembles that of previous research in this area, including Rajgopal and Venkatachalam (2011), Cornett et al. (2008), Jiraporn et al. (2008), Yu (2008) and Mouselli et al. (2011). In the sensitivity analysis, earnings management was estimated using the Jones Model (Jones 1991) and Performance-Adjusted Discretionary Accruals (Kothari et al., 2005).

[64] Refer footnote 22 to see the determination of independent directors.

3.7.5.1 The Modified Jones Model and Jones Model

Discretionary accruals were computed using the cross-sectional Jones and cross-sectional Modified Jones Models, which are both used by Kothari et al. (2005). The total accruals were calculated using the cash flow approach since it is more favourable than balance sheet approach, according to Hribar and Collin (2002). Consistent with Jo and Kim (2007), total accrual was calculated as follows:

Total Accruals (TA) = net income after extraordinary items – net cash flow from operations

Following Kothari et al. (2005), the equation for non-discretionary accruals for the Jones (1991) Model is expressed as follows:

$$NDA = \alpha 1\ (1/LTA) + \alpha 2\ (\Delta REV/LTA) + \alpha 3\ (PPE/LTA)$$

Whereby:
NDA non discretionary accruals
LTA = lagged total assets
ΔREV = Change in Revenues
PPE = Property, plant and equipment (gross)

The equation for non-discretionary accruals according to the Modified Jones Model (1995) is:

$$NDA = \alpha 1\ (1/LTA) + \alpha 2\ (\Delta REV - \Delta REC\ /LTA) + \alpha 3\ (PPE/LTA)$$

Whereby:
NDA = non discretionary accruals
LTA= lagged total assets
ΔREV= Change in Revenues
ΔREC= Change in Receivables
PPE = Property, plant and equipment (gross)

To calculate the NDA using the Jones and Modified Jones Models, it is necessary to estimate the coefficients: α1, α2 and α3, for both models. The data for the firms in the same industries and years (at least 6 firms in each industry) were gathered and the OLS linear regression was used to estimate the coefficient parameters for each industry. In similarity to the approach used by Athanasakou et al., (2009), industries with less than 6 firms were removed from the sample, because of the lack of quorum in calculating the coefficient. Each firm's classification was based on their supersector according to the Industry Classification Benchmark (ICB), created by FTSE Group and Dow Jones Indexes, in line with Lemans (2009).

In order to obtain the coefficient, the equation below was regressed using OLS regression:

$$TA/LTA = \alpha1\ (1/LTA) + \alpha2\ (\Delta REV/LTA) + \alpha3\ (PPE/LTA) + \varepsilon$$

Whereby:
TA = Total accruals
LTA = lagged total assets
ΔREV = Change in Revenues
PPE = Property, plant and equipment (gross)

The coefficient from this regression was used to calculate the NDA using the Jones and Modified Jones Models. Then, the discretionary accrual was calculated using the equation below:

$$DA = TA/\ LTA\text{-}NDA$$

Whereby:
DA = discretionary accruals
TA = total accruals
LTA = lagged total assets

NDA = non-discretionary accruals

The present study employs the absolute value of discretionary accruals as a proxy for earnings management, since this study is not focusing on the direction of earnings management.[65] The employment of the absolute value of discretionary accruals (based on the Modified Jones Model) as a proxy for earnings management is in line with numerous prior studies, including Mouselli et al. (2011), Yu (2008), Kothari et al. (2005), Bartov at al. (2001) and DeFond and Jiambalvo (1994).

3.7.5.2 The Performance-Adjusted Discretionary Accrual model

Following the approach of Kothari et al. (2005), the Performance-Adjusted Discretionary Accrual was calculated by incorporating lagged ROA into the Modified Jones Model, as introduced by Dechow et al. (1995). In particular, the NDA was estimated as follows:

[65] The present study acknowledges that certain studies employed signed discretionary accruals as the proxy for earnings management. The use of absolute value of discretionary accruals per se might not be able to capture the motives behind earnings management increasing and decreasing. Future research could improve this study by using both signed and absolute value of discretionary accruals as proxies for earnings management.

NDA = α1 (1/LTA) + α2 (ΔREV- ΔREC /LTA) + α3 (PPE/LTA) + α4 (LROA)

Whereby:
NDA = non discretionary accruals
LTA = lagged total assets
ΔREV = Change in Revenues
ΔREC = Change in Receivables
PPE = Property, plant and equipment (gross)
LROA = Lagged Return on Assets (ROA)

To calculate the NDA using Performance-Adjusted Discretionary Accruals, it is necessary to estimate the coefficients α1, α2 and α3. The data for the firms in the same industries and years (at least 6 firms in each industry) was collected and the OLS regression was used to estimate the equation below. In line with UK study, Athanasakou et al. (2009) this study also employ six firms in the same industry when OLS regression was performed in order to obtain the coefficient. This step is particularly important, given that industries with less than six observations cannot be used to estimate coefficient parameters.

TA/LTA = α1 (1/LTA) + α2 (ΔREV/LTA) + α3 (PPE/LTA) + α4 (LROA) + ε

Whereby:
TA = Total accruals
LTA = lagged total assets
ΔREV = Change in Revenues
PPE = Property, plant and equipment (gross)
LROA = Lagged Return on Asset (ROA)

The coefficient from this regression was used to calculate the NDA using Performance - Adjusted Discretionary Accruals. Then, the discretionary accruals were calculated using the equation below:

DA = TA/ LTA-NDA

DA = discretionary accruals
TA = total accruals
LTA = lagged total assets
NDA= non-discretionary accruals

The absolute value of discretionary accruals was used as a proxy for earnings management because this study is not focusing on the direction of earnings management. Becker et al., (1998) claim that the use of the absolute value of discretionary accruals is effective in capturing both income-increasing and income-decreasing effects in earnings management. As mentioned above, the employment of the absolute value of discretionary accruals as a proxy for earnings management takes a similar approach to that taken by Mouselli et al. (2011), Yu (2008), Bartov at al. (2001) and DeFond and Jiambalvo (1994).

3.7.6 Control variables

3.7.6.1 Firm-specific variables

When investigating the relationship between disclosure quality and earnings management, several control variables were included in order to ensure that the model was not misspecified. Eleven control variables were included in the model; this ensured that the model was able to capture the effect of earnings management.

(i) FIRM SIZE (LMCAP)

Previous research has proved that the relationship between firm size and earnings management is mixed. Firm size can be negatively related to earnings management

because large firms are basically under high scrutiny from the investors and this may reduce managers' propensity to manipulate earnings (Lobo and Zhau, 2006; Zhau and Elder, 2001). However, a firm's size can also positively relate to earnings management. Moreover, Lobo and Zhau (2006) argue that managers in large firms have greater incentives to engage in earnings management, given that the nature of their business operations are much more complicated than small firms and this can lead to earnings management being less detectable (p. 61). Complexity of information, therefore, increases information asymmetry; hence, reducing the monitoring functions of investors and analysts. Several studies document a positive link between firm size and earnings management (Lobo and Zhau, 2006; Jo and Kim, 2007). Given that firm size can potentially influence earnings management in both negative and positive ways, the present study predicts that there is a positive or a negative association between firm size and earnings management.[66] The natural log of market capitalisation is used as a proxy for firm size, and this use is consistent with a long line of previous research (e.g. Hoitash et al., 2009; Wallace et al., 1999; Wallace and Naser, 1995; Chang et al., 2008).

(ii) LAGGED PROFITABILITY (LAGGED ROA)

This study also includes lagged return on assets (ROA) as a proxy for profitability, since earnings has been viewed as a measure of ultimate performance by outsiders (Ronen and Yaari, 2008). In this regard, Skinner (2003) claims that it is important to control for

[66] The present study admits that the competing view of firm size and earnings management might be due to potential non-linearity effects. This is one of the weaknesses in the present study, and it would be wise for future research to consider non-linearity effects, between a firm's size and earnings management, in their regression.

firms' performance when earnings management is considered, given that it is connected to the investment opportunity. It can be argued that profitability can be either positively or negatively related to earnings management. In positive accounting theory, political cost hypothesis predicts that firms with high profits tend to choose an accounting method that can reduce their earnings in order to mitigate political pressures (Watts and Zimmerman, 1990). For example, high profitability in pharmaceutical firms in the US creates incentives for managers to deflate earnings in order to alleviate the political pressure to reduce the cost of medicine (Meyer et al., 2000). Jo and Kim (2007) report that ROA is highly and positively related to earnings management, in their US study.

However, high profitability can also be negatively related to earnings management, given that companies making high profits are supposed to make no earnings management effort in order to reach their earnings threshold. Skinner (2003) documents that low ROA firms are more likely to inflate earnings. Due to this competing view, the present study predicts that there is both a positive and a negative relationship between profitability and earnings management. As in Skinner (2003), profitability was measured using Return on Assets ratio (net income divided by total assets). Lagged data for ROA was used to control for the effect of endogeneity. In the sensitivity analysis section, Return on Sales ratio (net income divided by sales) and Return on Equity ratio (net income divided by total number of ordinary shares) were employed as alternative proxies for profitability.

(iii) NET CASH FLOW FROM OPERATION (NCF/LTA)

Firms with strong operating cash flow performance are less likely to employ income increasing discretionary accruals to boost earnings because these firms are already performing well (Lobo and Zhau, 2006, p. 61). Consistent with Becker et al. (1998), Bauer and Boritz (2009), Gul et al. (2009) and Lobo and Zhau (2006) the present study predicts a negative relationship between net operating cash flow and earnings management and it was measured by dividing net cash flow from operation with lagged total assets (NCF/LTA)

(iv) ANALYST FOLLOWING (ANALYST)

Through the theoretical lens, monitoring by financial analysts has the potential to reduce the agency cost in the principal-agent relationship (Jensen and Meckling, 1976) through the dissemination of information, which may lead to lower information asymmetry between agent and principal (e.g. Brennan and Hughes, 1991; Ali et al., 2008; Roulstone, 2003). This therefore increases investors' ability to supervise firms and constrain earnings management. Gavious (2007) reports that analysts are knowledgeable and able spot earnings management practices; hence, managers will be reluctant to manipulate earnings in the presence of a financial analyst (e.g. Yu, 2008; Ke, 2001).

On the other hand, a large analyst following could also have an adverse effect on firms. In particular, a high analyst following increases an analyst's incentives to be a free rider. It has also caused herding among analyst forecasters, given that analysts

always consider other analysts' recommendations or forecasts, for job security reasons (e.g. Hong et al., 2000; Welch, 2000). Having said this, it is presumed that there are both positive and inverse relationships between analyst following and earnings management. Analyst following (ANALYST) data is downloaded from *DataStream* and measured using the number of the analyst following. This method is similar to the approach taken by Eng and Mak (2003) and Chang et al., (2008).

(v) TOTAL ACCRUAL (TACF/LTA)

The absolute value of total accruals is expected to be positively related to earnings management, given that high total accruals are strongly connected to high earnings management (Becker et al., 1998). Accounting accruals, which represent discrepancies between sales and revenue, is one of most popular methods by which managers manipulate earnings (Goncharov, 2005). According to Velury, (2003, p. 173), "larger (smaller) discretionary accruals suggest the presence of more (less) earnings management". Moreover, Dechow et al., (1996) document that firms that under SEC Enforcement Action are prone to have a higher accrual than their counterparts. Numerous studies include the absolute value of total accrual as one of the control variables that can influence earnings management (e.g. Becker et al., 1998; Jo and Kim, 2007; Bukit and Iskandar, 2009; Velury, 2003; Lobo and Elder, 2001). The positive relationship between the absolute value of total accrual and earnings management is documented in prior studies (e.g. Bukit and Iskandar, 2009; Velury, 2003). Consistent with Jo and Kim (2007), the present study included the absolute value of total accrual

(net income after extraordinary items minus net cash flow from operations) divided by lagged total assets (TACF/ LTA) as one of the control variables in the analysis.

(vi) INVESTMENT OPPORTUNITY (PPE/LTA)

When explaining the relationship between investment opportunity and earnings management, Skinner (1993) proposes that firms with high assets in place are trapped with high debt, which subsequently increases incentives to manipulate earnings. According to Riahi and Arab (2011, p. 50), "firms use the amortisation like a means to manage earnings, then firms that invest more in net property, plant and equipment have more flexibility to manage earnings" (Riahi and Arab, 2011, p. 50). Based on the evidence documented by Burgstahler and Dichev (1997), Kim et al., (2003) point out that "firms with higher current assets or current liabilities provide more room for the management to manipulate earnings than firms with lower current assets or current liabilities" (p. 13). Using gross property, plant and equipment (PPE) as one of the proxies for investment opportunity, Jo and Kim (2007) report a positive link between PPE and earnings management. Therefore, the present study predicts that the interaction between investment opportunity and earnings management is positive. It is measured by dividing gross property, plant and equipment by lagged total assets.

(i) LOSS (LOSS)

Moreira and Pope (2007) argue that companies with negative earnings (LOSS) tend to engage more in earnings management, compared to their counterparts; while Ertimur (2004) claims that an unsecured position in loss firms might create incentives for

managers to manipulate earnings. Although loss firms only inflate slight amounts of income-increasing earnings management, it is still an example of earnings management behaviour (Beaver et al., 2000, as cited in Ke, 2001). Hoitash et al. (2009) included LOSS as one of the control variables that might influence the disclosure of material weaknesses. Therefore, the present study predicts that LOSS is positively related to earnings management. In the present study, LOSS was measured in a similar way to Krishnan (2003), where a dummy was assigned according to the firm's income before extraordinary items: 1 = negative earnings, 0 = positive earnings.

(ii) CHANGE IN PERFORMANCE (CHGEINSALES).

Jo and Kim (2007) report that a change in performance is negatively and significantly related to earnings management at $p<0.01$. It is argued that firms with a large change in performance are less interested in managing earnings than firms with a low change in performance. Therefore, an inverse relationship is predicted. Change in performance was measured using change in sales (current year sales minus previous year sales divided by lagged total assets).

(iii) LEVERAGE (DTA)

From another perspective, debt hypothesis, in the context of positive accounting theory, argues that highly leveraged firms may aggressively manipulate earnings in order to mitigate and alleviate their large debt in the eyes of shareholders (Watt and Zimmerman, 1990). Richardson et al. (2002) demonstrate that high leverage results in managers being more aggressive in their accounting choices. Moreover, high leverage

indicates that a firm is facing financial problems and are more likely to be involved in fraud (Chen et al, 2006). Prior studies point out that firms with high leverage have an incentive to inflate earnings to avoid debt covenant violation (Becker et al., 1998; Velury, 2003) and DeFond and Jiambalvo (1994) find evidence of firms that are violating debt covenants being engaged in earnings management.

Several studies include leverage as one of the control variables that influences earnings management (Bauer and Boritz, 2009; Habbash, 2010; Jo and Kim, 2007; Ke, 2001; Richardson et al., 2002; Becker et al., 1998). In this regard, the present study predicts positive links between leverage and earnings management. Leverage was measured using Debt to Asset ratio (DTA), which is determined by dividing total long-term debt by total assets. The data for DTA is available from *DataStream*.

(iv) AUDIT QUALITY (BIG4)

Independent audits are one of the external governance mechanisms that are essential in aligning managers and shareholders interests and reducing agency costs by playing a role in monitoring and control (Jensen and Meckling, 1976). Auditing process that is carried out by independent and credible audit firms is able to hamper "aggressive, potentially opportunistic reporting of accruals", reducing managers' incentives to manipulate earnings (Francis et al., 1999, p. 18). This underlying assumption illustrates the inverse relationship between audit quality and earnings management that is documented in prior studies including Kent et al. (2010), Becker et al. (1998) and Francis et al. (1999). In this instance, large audit firms (Big 4) are viewed as more

credible because they are expected to have higher experience and better financial knowledge (Velury, 2003; Kent et al., 2010, p. 177). They are also expected to be equipped with high-end technology and resources and to possess greater manpower than their counterparts. By the same token, Becker et al. (1998, p. 6) point out that:

> Auditing reduces information asymmetries that exist between managers and firm stakeholders by allowing outsiders to verify the validity of financial statements. The effectiveness of auditing, and its ability to constrain the management of earnings, is expected to vary with the quality of the auditor. In comparison to low-quality auditors, high-quality auditors are more likely to detect questionable accounting practices and, when detected, to object to their use and/or to qualify the audit report. Thus, high-quality auditing acts as an effective deterrent to earnings management because management's reputation is likely to be damaged and firm value reduced if misreporting is detected and revealed.

Hence, the present study predicts a negative link between audit quality and earnings management. Audit quality was measured using a dummy (1 = if firms are audited by a Big 4 audit firm, 0 = if otherwise), this approach is consistent with Kent et al. (2010).

(v) INDUSTRY AND YEAR EFFECT (INDUSTRY, YEAR)

It is argued that the industry type is a crucial influence on managers' earnings management activities. Meyer et al. (2000) find that the pharmaceutical industry practices decreasing earnings management in order to avoid the pressures of political cost. Erickson and Wang (1999) find clear evidence that manufacturing firms tend to manipulate earnings using their inventory, while non-manufacturing firms prefer to manipulate earnings by postponing the accounts payable. In the present study, industry dummies were used to control for industry effects, given that firms in the same industry are normally homogenous in terms of firm characteristics, including assets and liability. Industry dummies were classified based on the Industrial

Classification Benchmark (ICB) that also has been used by FTSE and London Stock Exchange. To control for year effects, year dummies were also included in the model, as in Lapointe-Antunes et al. (2006).

3.7.7 Model

When examining the relationship between disclosure quality, corporate governance and earnings management, the OLS regression equation was expressed using following model:

EM = DQ(IRAWARD/FLSCORE/AFA) + BODIND + BODSIZE + BODMEET + ACSIZE + ACIND + ACMEET + ACEXP + LOSS + LEV + ANALYST + TACF /LTA+ NCF/LTA + PPE/LTA + BIG4 + LAGGED ROA + SIZE + CHANGE IN SALES + 2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMER GOODS + CONSUMER SERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY + e

Where:

Table 3-3: Variable definitions

Variables	Measurement
Earnings Management (EM)	Discretionary accrual estimated using (i) Cross-sectional Modified Jones Model **(MJONES)** (ii) Cross-sectional Jones Model **(JONES)** (iii) Performance-Adjusted Discretionary Accrual **(PERFORM-ADJ)**
Disclosure Quality **(DQ)**	(i) IR Award (dichotomous, 1 = winner, 0 = non winner) **(IRAWARD)** (ii) The number of forward-looking scores in the annual report **(FLSCORE)** (iii) Analyst Forecast Accuracy **(AFA)**
BODIND	Percentage of independent directors in the board (excluding the chairman).
BODSIZE	Total number of board members
BODMEET	Total number of board meetings
ACIND	1 = if the percentage of independent directors in audit committee is 100%, 0 = if otherwise
ACSIZE	1 = if the number of audit committee member =/>3, 0 = if otherwise
ACMEET	1 = if the number of board meetings in a year is =/>3, 0 = if otherwise
ACEXP	1 = if the number of audit committee expertise is =/>1, 0 = if otherwise
SIZE	Natural Log of market capitalisation
LEV	Debt to Asset Ratio
PROFIT	Return on Asset ratio
CHGEINSALES	Change in sales. This is a proxy for change in performance.
ANALYST	Number of analysts following
TACF/LTA	Absolute value of total accruals. Where total accruals is calculated as follow; net income – net cash flow from operation/ lagged total assets
NCF/LTA	Net cash flow from operation activities divided by lagged total assets
PPE/LTA	Gross property, plant and equipment divided by lagged total assets. This is a proxy for investment opportunity.
LOSS	Dummy. 1 = firms with negative earnings 0 = firms with positive earnings.
BIG4	Auditor a Big4 firm (Big4 = 1, Non-Big4 = 0)
YEAR	Year Dummies (2007, 2006, 2005). Year 2004

	excluded from the model.
INDUSTRY	Industry Dummies (Consumer goods, consumer services, oil and gas, healthcare, telecommunication, technology, and utilities). The industrial dummy is excluded from the model.

There is a potential for simultaneity bias between disclosure quality and earnings management. Therefore in line with Zhau and Lobo (2001), a simultaneous system of equation, based on 2SLS estimation, was used, in which disclosure quality and earnings management are treated as endogenous. In order to test the simultaneous relationship, two related equations based on the endogenous variables were developed. The first was the earnings management equation, which was similar to the above mentioned, while the second was the disclosure quality equation, which was driven by the findings of prior literature.

In relation to the disclosure quality equation,[67] Jans et al. (2005), Shaw (2003) and Francis et al. (2008) hypothesised that income smoothing or earnings quality (measured using discretionary accrual) are important determinants for disclosure quality. Francis et al. (2008) find a complementary relationship between earnings quality and disclosure quality. This signals that firms with high earnings quality offer better disclosure quality than their counterparts. Moreover, Zhau and Lobo (2001) demonstrate, in their US study, that there is negative bi-directional link between disclosure quality (measured using AIMR Ratings) and earnings management (estimated using the Modified Jones Model).

[67] A detailed explanation for each variable in the disclosure quality equation is available in Chapter Five.

Besides that, audit committee characteristics are documented in the prior literature as crucial countervailing forces in explaining disclosure quality. Such characteristics include audit committee size (Felo et al., 2003; Lin et al., 2006; O'Sullivan et al., 2008), audit committee independence (Bradbury et al., 2009; Klien, 2002), frequency of audit committee meetings (Karamanao and Vafeas, 2005), audit committee expertise (Felo et al., 2003) and audit committee multiple directorship (Beasley, 1996). In addition, previous research also highlights that board characteristics are statistically significant in determining the extent of disclosure quality. These include board independence (Baek et al., 2009; Klien, 2002; Li et al., 2008; Chen and Jaggi, 2000; Conyon et al., 2002), board meeting frequency (Karamanao and Vafeas, 2005; Chen et al., 2006; Vafeas, 1999), board size (Bradbury et al., 2006), non-executive chairmanship (Haniffa and Cooke, 2005), duration of chairman tenure (Chen et al., 2006) and number of other directorships held by chairman(Beasley, 1996). Similarly, the monitoring that is offered by substantial shareholders (Eng and Mak, 2003) has potential for reducing conflict of interest; thereby, improving disclosure quality. Francis et al. (2008) find that earnings variability is inversely related to voluntary disclosure. Several control variables that count as important in explaining disclosure quality include firm size (Wallace and Naser, 1995; Hossain et al., 1994), leverage (Chow and Wong-Boren, 1987; Ahmad and Courtis, 1999; Raffournier, 1995; Hossain et al., 1994; Wallace et al., 1994; Wallace and Naser, 1995), profitability (Watson et al., 2002; Debreceny and Rahman, 2005; Singhvi and Desai, 1971), audit quality (Inchausti, 1997; Raffournier, 1995), and analyst following (Eng and Mak, 2003 and Chang et al., 2008). Year and industry dummies were included in the model to control for year and industry effects

in line with Nelson et al. (2010) and Kent and Steward (2008). The equation for earnings management and disclosure quality is represented below:

EM = DQ + BODIND + BODSIZE + BODMEET + ACSIZE + ACIND + ACMEET + ACEXP + LOSS + DTA + ANALYST + TACF /LTA + NCF/LTA + PPE/LTA + BIG4 + LAGGEDROA [68]+ LMCAP + CHGEINSALES +2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMER GOODS + CONSUMER SERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY + e----- equation (1)

DQ = **EM** + BODSIZE + BODMEET + ACSIZE + ACMEET + ACIND + ACEXP + ACMULT + CHAIRTEN + CHAIRMULT + CHAIRNONEXE + SUBSHR + NOSUBSHR + ROA + DTA + BIG4 + ANALYST + EARNVAR + LMCAP + 2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMER GOODS + CONSUMER SERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY + e----- equation (2)

Where:

[68] Incorporating lagged data for the purpose of controlling endogeneity is not only restricted to ROA but also is generic to all types of financial data. The present study acknowledges that failure to include lagged financial data is one of the drawbacks in the current research. Lo et al. (2010) employed lagged financial data to control for endogeneity stemming from simultaneity bias.

Table 3-12: Variable definitions

Variables	Measurement
Earnings Management (EM)	Discretionary accrual estimated using the (iv) cross-sectional Modified Jones Model **(MJONES)** (v) cross-sectional Jones Model **(JONES)** (vi) cross-sectional Performance-Adjusted Discretionary Accrual **(PERFORM-ADJ)**
Disclosure Quality **(DQ)**	(iv) IR Award (dichotomous, 1 = winner, 0 = non winner) **(IRAWARD)** (v) The number of forward-looking sentences in the annual report **(FLSCORE)** (vi) Analyst Forecast Accuracy **(AFA)**
BODIND	Percentage of independent directors on the board (excluding the chairman).
BODSIZE	Total number of board members
BODMEET	Total number of board meeting
ACIND	1 = if the percentage of independent directors in the audit committee is 100%, 0 = if otherwise
ACSIZE	1 = if the number of audit committee members' is =/>3, 0 = if otherwise
ACMEET	1 = if the number of board meetings in a year is =/>3, 0 = if otherwise
ACEXP	1 = if the number of financial experts on the audit committee is =/>1, 0 = if otherwise
SIZE	Natural Log of market capitalisation
LEV	Debt to Asset Ratio
PROFIT	Return on Asset Ratio
CHGEINSALES	Change in sales divided by lagged total assets. This is a proxy for change in performance.
ANALYST	Number of analysts following
TACF/LTA	Absolute value of total accruals (where total accrual is calculated as follow; net income – net cash flow from operation activities / lagged total assets)
NCF/LTA	Net cash flow from operation activities divided by lagged total assets
PPE/LTA	Gross property, plant and equipment divided by lagged total assets. This is a proxy for investment opportunity.
LOSS	Dummy 1 = firms with negative earnings, 0 = firms with positive earning.
ACMULT	Average number of additional directorships held by

	audit committee members
CHAIRNONEXE	Status of the board chair (1 = non-executive, 0 = executive)
CHAIRTEN	Number of years the chair has held the chair position
CHAIRMULT	Number of additional directorships held by board chair
3%SUBSHR	Total percentage of shares held by substantial shareholders (i.e. 3% or more)
NO.SUBSHR	Number of substantial shareholders (i.e. 3% or more) in a firm
EARNVAR	Standard deviation of return on sales.
BIG4	Auditor is a Big4 firm (Big4 = 1, Non-Big4 = 0)
YEAR	Year Dummies (2007, 2006, 2005). Year 2004 excluded from the model.
INDUSTRY	Industry Dummies (Consumer goods, consumer services, oil and gas, healthcare, telecommunication, technology, and utilities). The industrial dummy is excluded from the model.

In order to run the 2SLS Regression, this present study identifies an instrumental variable for each of the endogenous variable, similar to Cornett et al. (2009). According to them, the instrumental variable must be "correlated with the endogenous variable but is exogenous to the structural equation" (p. 422). When earnings management (MJONES) is treated as endogenous, this present study employs absolute value of total accruals (TACF/LTA) as the instrumental variable, because it is highly correlated with MJONES and not correlated to the error term.[69] Becker et al. (1998) and Velury (2003) claim that total accrual is supposed to have a positive relationship with earnings management because high accruals are strongly connected to high earnings management.

[69] The pairwise correlation between MJONES and TACF/LTA is 38%. The regression analysis findings show a consistent and high t-value for TACF/LTA, indicates a valid and sound instrumental variable for MJONES, as suggested by Adkins and Hill (2007).

With regard to disclosure quality, this present study identifies audit committee meeting (ACMEET) and firm size (LNMCAP) as instrumental variables.[70] ACMEET is a platform for the audit committee to exercise their professional judgement and expertise, hence is expected to be associated with disclosure quality. Karamanou and Vafeas (2005) found that firms with active audit committee meeting tend to provide more quality information on earnings forecast. Prior literature found that firm size (LMCAP) is one of the important determinants for disclosure quality (e.g. Chow and Wong-Boren, 1987; Hossain et al. 1994), because large firms tend to provide more disclosure because they have more resources and cash (Buzby, 1975) and subject to public scrutiny (Camfferman and Cooke, 2002).

For the purpose of sensitivity analysis, the corporate governance variables were redefined in the following way:

Table 3-13: Variable definitions (redefined measures)

Variables	Measurement
ACIND^{A}	Percentage of independent directors in the audit committee
ACSIZE^{A}	Number of audit committee members
ACMEET^{A}	Number of audit committee meetings in a year
ACEXP^{A}	Percentage of directors with financial expertise in the audit committee
BODIND^{A}	1 = if percentage of independent directors in the board is =>50% (excluding chairman), 0 = if otherwise
BODSIZE^{A}	1 = high board size, 0 = low board size
BODMEET^{A}	1 = high board meeting, 0 = low board meeting

[70] The pairwise correlation between ACMEET (LNMCAP) to disclosure quality measures are quite high, ranging from 19% to 3% (41% to 19%). The t-value for both ACMEET and LNMCAP are consistently high in the regression model, hence suggesting that they are valid instrumental variable for disclosure quality (Adkins and Hill, 2007).

3.7.8 Statistical analyses[71]

The analysis for residuals and independent variables for this project were performed and the results are reported in Appendix 1. The detailed discussion about the outliers, missing data and the determination of the estimation are also discussed in that section. In brief, the linearity test, multicollinearity, heteroskedasticity and normality were checked using several tests including a QQ plot, variance inflation factor, skewness-kurtosis test, RVF plot, White test, Breush-pagan test, Shapiro-Wilk test and Shapiro-Francia test. Heteroskedasticity is mild, given that the results for the White and Breusch-Pagan tests reveal contradictory results. Heteroskedasticity was, therefore, corrected using robust standard error (White, 1890). The model specification test was performed using the link test and the Ramsey RESET test. All continuous variables were winsorised at the top and bottom 1% in order to reduce the effect of outliers, as in Cornett et al. (2009), Dhaliwal et al. (2009) and Biddle et al. (2009). The random missing data was replaced by the mean of the valid data as suggested by Hair et al. (2008). Concerning the analysis of residuals, the present study finds that the residuals for all equations (i.e., when IRAWARD, FLSCORE and AFA is used interchangeably as independent variables), are normally distributed and fully comply with other parametric assumptions (i.e., multicollinearity and heteroskedasticity). OLS regression was performed in the main analysis while additional tests using Tobit, truncated and robust regressions were used in the sensitivity analysis to accommodate the nature of non-discretionary accruals data (i.e., zero truncated data). Tobit and truncated regression are semi-parametric tests which

[71] The results for analysis of residual and independent variables (e.g. normality test, linearity test, heteroskedasticity test) are reported in the Appendix 1.

do not fully comply with the assumptions of the parametric test (Powell, 2008), while robust regression, which is a non-parametric analysis, neglected all of the assumptions in its test. [72]

[72] Earnings management data and analyst forecast accuracy data are zero truncated. Therefore, the present study rescales the earnings management data by multiplying it by 100. A similar procedure was carried out by Li (2011), who rescaled the dependent variable by multiplying by 100. Rescaling the data helps to produce a more meaningful coefficient in the multivariate analysis. Email discussion with one of the leading STATA experts, Prof. Christopher Baum, suggested that the rescaling process is favorable because it will not change the p-value and t-statistics, but will help to produce a more meaningful/and sensible coefficient.

4 Disclosure Quality and Earnings Management: Results and Discussions

4.1 Introduction

In this chapter, the study presents the results from several types of analyses including descriptive statistics and the univariate and multivariate tests, which were applied using STATA.[73] In addition to OLS regression in predicting earnings management, the multivariate test was also analysed using 2SLS regression, where both disclosure and earnings management are assumed to be endogenous. With respect to sensitivity analysis, a series of additional tests were performed in order to test the robustness of the findings.

4.2 Descriptive statistics

Table 4-1 describes the mean, standard deviation, minimum and maximum percentiles and median of the variables used in this study. The descriptive statistics reveal that the mean absolute value of discretionary accruals estimated using the Modified Jones Model (MJONES) is 0.0601 and ranges from 0.0005 to 0.4775, while discretionary accruals using the Jones Model (JONES) and Performance-Adjusted Discretionary Accrual (PERFORM-ADJ) report an average of 0.0605 and 0.0584 respectively.

[73] As well as using STATA, the univariate and multivariate analyses were also randomly executed using a Statistical Package for Social Sciences (SPSS). The present study noted that the output from STATA and SPSS are qualitatively similar.

According to these findings, the mean absolute value of discretionary accruals in the present study is comparable to that of prior literature in earnings management. For example, Rajgopal et al. (1999), in their US study, demonstrate that the average absolute value of discretionary accruals estimated using the Modified Jones Model (MJONES) is equal to 0.046, while the mean absolute value of discretionary accruals is 0.049 in Yu's (2008) research on analyst coverage and earnings management.

With regard to AFA, the average value in this study is -0.0112, which is qualitatively the same to a study by Bhat et al. (2006), which reports a mean AFA equal to -0.019 in their UK sample. In this instance, a higher AFA indicates that the analyst's prediction of earnings per share (EPS) is more accurate. Nonetheless, previous US studies show a lower mean AFA than has been shown by UK studies. Using data from the years 2000 to 2002, Byard et al. (2006) in their US study find a mean AFA of -0.0271. Similarly, Duru and Reeb (2002) in their US research demonstrate that the average AFA in their sample is -0.05, which is very close to Lang and Lundholm (1996), with their mean AFA of -0.042. When compared to the results found by Bhat et al. (2006), these findings indicate that the accuracy of analysts in their forecasting activities appears to be higher in the UK context than in the US.

With respect to the FLSCORE, which represents one of the proxies for disclosure quality, the descriptive statistics in Table 4-1 report that the average number of forward-looking sentences in the firm's annual report is 100.12, while the lowest number is 6 and the highest is 494. This result is in contrast to Hussainey et al. (2003),

whose study on the annual reports of UK firms from 1996 to 1999 reveals that the number of forward-looking sentences ranges from 0 to 168. This discrepancy may indicate that companies in the UK have become more vigorous in providing forward-looking information in their annual reports in recent years as compared to several years ago.

The mean ACSIZE, ACIND, ACEXP and ACMEET are 0.9517, 0.896, 0.9068 and 0.9517 respectively, suggesting that the firm's compliance to the recommended benchmark drawn from the UK Corporate Governance Code (2010) and the Smith Report (2003) is satisfactory Moreover, this result signifies that compliance by UK firms to the guidelines of the UK Corporate Governance Code (2010) and Smith Report (2003) on audit committee characteristics has improved over time, given that a study of UK firms from 2001 to 2004 (Zaman et al., 2011) reports lower values for ACSIZE (mean = 0.34), ACEXP (mean = 0.71) and ACMEET (mean = 0.21), although the study indicates a higher mean ACIND (0.97) as compared to the present study.

With regard to alternative measures for audit committees, the average $ACSIZE^{A}$, $ACIND^{A}$, $ACEXP^{A}$ and $ACMEET^{A}$ found by the present study are 3.62, 97.06%, 35.82% and 4.31 respectively. This indicates that the sample UK firms have on average between three and four audit committee members, who tend to meet between four and five times a year. Moreover, a large majority (97.06%) of the audit committee members are independent directors, 35.82% of whom are equipped with relevant financial expertise.

Concerning BODIND, the mean $BODIND^{A}$ and BODIND are 0.848 and 56.86% respectively, hence indicating that 84.8% of the sample complies with the UK Code of Corporate Governance's (2011) provision that the number of independent directors must be equal to the number of dependent directors (excluding the chairman). On average, the percentage of independent directors on the board as demonstrated by BODIND is 56.86%, exceeding the 50% cut-off criteria laid by The UK Corporate Governance Code (2011). This finding is very similar to the UK study by Zaman et al. (2011), which reports that the proportion of non-executive directors on the board of FTSE350 firms is 53%.

The BODMEET value found by the present study indicates that boards of directors in the UK meet an average of 8.71 times per year and thus more frequently than their US counterparts, who meet an average of 7.26 times per year, as reported by Laksmana (2008). This is supported by the findings of Zaman et al. (2011), whose study indicates that the average number of board meetings per year in UK firms is 8.78. Nonetheless, the average BODSIZE in the current sample is 9.49, which is lower than the average board size (11.33) in the US as documented by Laksmana (2008).

With regard to the firm-specific characteristics, the average of LMCAP in the sample is £7,082,128,000, and the they are normally followed by 14.32 ANALYST, which is slightly lower than the figure obtained by Lang and Lundholm (1996) who found the average analyst following to be equivalent to 17.6, but higher than that of Byard et al. (2006) who cite a mean analyst following of 13.83 in their US studies. Most of the

firms are audited by Big Four audit firms, as reflected in the mean of 0.968 for the BIG4 variable. Firm's leverage, which is measured using debt to asset ratio (DTA) shows an average of 24.745, hence suggesting that each pound of debt is backed up by 24.745 pound of assets. A proxy that controlled for the past performance effects, LAGGEDROA, reported a mean of 8.796, with a range of -20.24 to 50.18. The average for LOSS is 0.075, while most of the CHGEINSALES for the sample firms is 0.219. Furthermore, the descriptive statistics also recorded that the average for PPE/LTA, NCF/LTA and TACF/LTA are 0.539, 0.132 and 0.0788 respectively.

Table 4-1: Descriptive statistics[74]

VARIABLES	MEAN	STD. DEV	MIN	MAX	25% PERC	50% PERC	75% PERC
IRAWARD	0.5	0.5	0	1	0	0.5	1
FLSCORE	99.16	64.95	9	423	55	87	130
AFA	-0.0112	0.0181	-0.123	-0.00002	-0.0123	-0.0053	-0.00213
MJONES *[75]	0.0601	0.0699	0.0005	0.4775	0.0173	0.044	0.08257
JONES*	0.0605	0.0672	0.0002	0.461	0.0163	0.04336	0.0819
PERFORM-ADJ*	0.0584	0.0513	0.00153	0.2677	0.0217	0.0461	0.0806
ACIND	0.896	0.305	0	1	1	1	1
ACSIZE	0.9517	0.214	0	1	1	1	1
ACMEET	0.9517	0.214	0	1	1	1	1
ACEXP	0.9068	0.2911	0	1	1	1	1
BODSIZE[A]	0.448	0.498	0	1	0	0	1
BODMEET[A]	0.458	0.499	0	1	0	0	1
BODIND[A]	0.848	0.359	0	1	1	1	1
ACIND[A]	97.06	8.854	66.66	100	100	100	100
ACSIZE[A]	3.62	0.924	2	6	3	3	4
ACMEET[A]	4.312	1.856	2	13	3	4	5
ACEXP[A]	35.82	19.32	0	100	25	33.33	50
BODSIZE	9.49	2.67	5	18	8	9	11
BODMEET	8.710	2.921	4	21	7	8	10
BODIND	56.86	10.345	33.33	80	50	57.14	63.63
LMCAP	14.574	1.462	9.755	18.603	13.621	14.374	15.747
LAGGED ROA	8.796	9.53	-20.24	50.18	4.22	7.83	12.83

[74] The skewness and kurtosis is reported Appendix 1. All continuous variables were winsorized at the top and bottom at 1%.
[75] * refers to the absolute value.

Table 4-1 Continued

VARIABLES	MEAN	STD. DEV	MIN	MAX	25% PERC	50% PERC	75% PERC
LOSS	0.075	0.265	0	1	0	0	0
PPE/LTA	0.539	0.504	0.0136	3.301	0.196	0.371	0.866
NCF/LTA	0.132	0.131	-0.3081	0.675	0.068	0.115	0.177
TACF/LTA	0.0788	0.0797	0.0013	0.4044	0.0266	0.056	0.104
DTA	24.745	15.292	0.05	74.14	15.5	22.55	31.28
BIG4	0.968	0.174	0	1	1	1	1
CHGEINSALES	0.219	0.866	-0.563	8.129	0.010	0.072	0.218
ANALYST	14.32	7.57	0	37	9.92	13.29	19
MCAP	£7,082,128,000	£17,500,000,000	£17,240,000	£122,000,000,000	£823,089,000	£1,740,657,000	£6,907,299,000
YEAR2007	0.241	0.428	0	1	0	0	0
YEAR2006	0.234	0.42	0	1	0	0	0
YEAR2005	0.248	0.432	0	1	0	0	0
TECH	0.134	0.342	0	1	0	0	0
TELECOM	0.0137	0.117	0	1	0	0	0
CGOOD	0.0827	0.275	0	1	0	0	0
CSERV	0.258	0.438	0	1	0	0	1
HEALTH	0.045	0.207	0	1	0	0	0
UTILITIES	0.037	0.191	0	1	0	0	0
OIL AND GAS	0.1034	0.305	0	1	0	0	0

4.3 Univariate analysis

4.3.1 T- test and Mann-Whitney U test

Table 4-2: T-test and Mann-Whitney U test

		(A) T-test			(B) Mann-Whitney U test		
VARIABLES	**NON-WIN/ WIN**	**Mean**	***t***	**p**	**Rank Sum**	**Z**	**p**
FLSCORE	0 1	80.96 117.34	-4.96	0.000 ***	17958 24237	-4.4	0.000 ***
AFA	0 1	-0.014 -0.008	-2.61	0.009 ***	14579 17805	-2.76	0.006 ***
MJONES	0 1	0.067 0.052	1.91	0.057 *	22814 19386	2.40	0.016 **
JONES	0 1	0.067 0.055	1.49	0.137	22115 20080	1.43	0.154
PERFORM-ADJ	0 1	0.0633 0.5601	1.06	0.289	22184 20012	1.52	0.128
ACMEET	0 1	0.910 0.993	-3.34	0.001 ***	20228 21968	-3.28	0.001 ***
ACIND	0 1	0.868 0.924	-1.54	0.124	20518 21678	-1.54	0.124
ACEXP	0 1	0.896 0.917	-0.61	0.546	20880 21315	-0.61	0.545
ACSIZE	0 1	0.937 0.965	-1.1	0.274	20808 21388	-1.1	0.274
BODIND	0 1	0.834 0.862	-0.65	0.514	20808 21388	-0.65	0.513
BODSIZE	0 1	1.303 1.593	-5.17	0.000 ***	18053 24143	-4.95	0.000 ***
BODMEET	0 1	0.421 0.497	-1.3	0.196	20300 21895	-1.29	0.196
ACMEET[A]	0 1	3.813 4.806	-4.72	0.000 ***	17227 24969	-5.67	0.000 ***
ACIND[A]	0 1	96.18 97.94	-1.7	0.091 *	20493 21702	-1.6	0.1091
ACEXP[A]	0 1	37.48 34.15	1.47	0.143	22639 19557	2.21	0.027 **
ACSIZE[A]	0 1	3.434 3.793	-3.36	0.001 ***	18794 23402	-3.5	0.001 ***
BODIND[A]	0 1	55.72 57.99	-1.88	0.060 *	19968 22227	-1.6	0.111
BODSIZE[A]	0 1	8.66 10.32	-5.56	0.000 ***	17514 24682	-5.1	0.000 ***

Table 4-2 Continued

		(A) T-test			(B) Mann-Whitney U test		
VARIABLES	**NON-WIN/ WIN**	**Mean**	***t***	**p**	**Rank Sum**	**z**	**P**
BODMEET[A]	0 1	8.579 8.841	-0.76	0.445	20141 22055	-1.35	0.177
LOSS	0 1	0.117 0.034	2.69	0.008 ***	21968 20228	2.66	0.008 ***
NCF/LTA	0 1	0.131 0.134	-0.18	0.859	21036 21161	-0.09	0.931
PPE/LTA	0 1	0.585 0.493	1.549	0.1224	21874 20321	1.087	0.2768
CHINSALES	0 1	0.172 0.267	-0.94	0.347	20678 21517	-0.59	0.5569
TACF/LTA	0 1	0.0914 0.066	2.69	0.0075 ***	23034 19161	2.712	0.0067 ***
LMCAP	0 1	£2,242,472,000 £1,190,000,000,000	-4.89	0.000 ***	15805 26390	-7.41	0.000 ***
DTA	0 1	25.96 23.53	1.36	0.1749	22274 19921	1.648	0.0993 *
ANALYST	0 1	10.56 18.08	-9.74	0.000 ***	14568.5 27626.5	-9.15	0.000 ***
BIG4	0 1	0.965 0.972	-0.34	0.736	21025 21170	-0.34	0.735
LAGGEDROA	0 1	8.762 8.83	-0.06	0.9513	20712 21483	-0.54	0.5893

Note: The calculation for T-test (Mann-Whiney U test) is based on the mean (median).

**** Significant at one percent level*

*** Significant at five percent level*

**Significant at ten percent level*

Table 4-2 presents the univariate tests using the *t-test* (Panel A) and the Mann-Whitney U test (Panel B). The *t-test* is calculated based on the differences of the mean, while Mann-Whitney-U test is based on the differences of the median. The sample is divided into two groups: group 1 is for the winners of the the Investor Relations Magazine Award and group 0 for the non-winners of the Investor Relations Magazine Award.

The analysis, using pooled data as shown in Table 4-2 (Panel A – *t-test*), reveals that there is a significant difference between the means of the two groups (winners and non-winners) for FLSCORE, AFA and MJONES. In other words, the winners of the Investor Relations Magazine Award (IRAWARD) were firms with a high forward looking score (FLSCORE) ($p<0.01$), high analyst forecast accuracy (AFA) ($p<0.01$) and low discretionary accruals (MJONES) ($p<0.05$). Generally, these initial findings support the hypothesis that there is an inverse relationship between disclosure quality and earnings management. These results are also qualitatively similar when the difference of median is counted using Mann-Whitney U test in Table 4-2 (Panel B).

The corporate governance variables also exhibit interesting findings. Table 4-2 (Panel A) reveals that the winners of the Investor Relations Magazine Award (IRAWARD) were firms with higher ACMEET ($p<0.01$), BODSIZE ($p<0.01$), ACMEETA ($p<0.01$), ACINDA ($p<0.10$), ACSIZEA ($p<0.01$), BODINDA ($p<0.10$) and BODSIZEA ($p<0.01$) as compared to the non-winners group. Using the Mann Whitney U test similar results were also reported.

Other control variables in Table 4-2 (Panel A) also report that the winners groups are higher in MCAP ($p<0.01$), ROA ($p<0.1$) and ANALYST ($p<0.01$) as compared to the non-winners group. Nevertheless, TACF/LTA and LOSS are significantly higher for the non-recipients of IRAWARD as compared to the recipients of IRAWARD.

Table 4-2 shows that the non-winners comprise the companies that suffer from negative earnings (LOSS) while most of the winners are the companies with positive earnings. These findings are highly significant at $p<0.05$. This result complements Moreira and Pope's (2007) US study which indicates that companies with negative earnings having a higher propensity to manipulate earnings as compared to the firms with positive earnings. Moreover, DTA in Table 4-2 also reveals that the non-winners group bears higher leverage when compared to the winners group at ($p<0.01$).

4.3.2 Pairwise correlation

Table 4-3 presents the pairwise correlation for all dependent and independent variables used in the regression analysis. Observations for all variables in the correlation analysis matrix show that most of the correlation coefficients are below 80%. A correlation coefficient of more than 80% indicates serious multicollinearity (Hair et al., 2008). The maximum correlation coefficient is recorded at 58%, which is between analyst following (ANALYST) and the Investor Relations Magazine Award (IRAWARD). As such, it can be concluded that the multicollinearity is not detrimental to the results of the multivariate analysis.

It is interesting to highlight that there are negative correlations between all disclosure quality measures (e.g. IRAWARD, FLSCORE and AFA) and earnings management, as estimated using modified Jones Model (MJONES), although only the correlations between the Investor Relations Award (IRAWARD) and analyst forecast accuracy (AFA) are significant at $p<0.05$. These results suggest that, firms with high disclosure quality are less involved in earnings management activities. These findings corroborate the research by Iatridis and Kadorinis (2009), which finds a negative correlation between voluntary disclosure and earnings management in the UK. In addition, ANALYST shows a significant positive relationship with all disclosure quality proxies (i.e. IRAWARD, FLSCORE and AFA), hence suggesting that there is complementary effect between ANALYST and disclosure quality.

For the sake of brevity, the correlations for JONES and PERFORM-ADJ are not reported in the pairwise correlation table, although the analysis was also performed on each of the mentioned variables. The results of the correlations (for JONES and PERFORM-ADJ) show very similar coefficients to MJONES, as reported in the table. The correlations between each of the earnings management measures are also strong and similar to the findings of Leuz et al. (2003).

Table 4-3: Pairwise correlation

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	IRAWARD	1.000									
2	FLSCORE	**0.29 (0.00)**	1.000								
3	AFA	**0.17 (0.00)**	0.06 (0.33)	1.000							
4	MJONES	**-0.14 (0.02)**	-0.02 (0.7)	**-0.14 (0.02)**	1.000						
5	BIG4	0.02 (0.74)	**0.17 (0.00)**	-0.03 (0.84)	**-0.14 (0.017)**	1.000					
6	DTA	**-0.11 (0.09)**	-0.04 (0.47)	**-0.15 (0.01)**	-0.02 (0.7)	**-0.23 (0.00)**	1.000				
7	ACSIZE	0.06 (0.27)	**0.14 (0.02)**	-0.05 (0.41)	**-0.10 (0.08)**	**0.24 (0.00)**	0.05 (0.42)	1.000			
8	ACIND	0.09 (0.12)	**0.18 (0.00)**	0.04 (0.49)	-0.07 (0.22)	**0.20 (0.00)**	-0.02 (0.76)	-0.07 (0.19)	1.000		
9	LMCAP	**0.48 (0.00)**	**0.33 (0.00)**	**0.21 (0.00)**	-0.01 (0.89)	-0.04 (0.50)	**0.12 (0.06)**	**0.11 (0.07)**	0.1 (0.12)	1.000	
10	CHSALES	0.06 (0.34)	-0.07 (0.21)	-0.02 (0.81)	0.078 (0.18)	**-0.22 (0.00)**	0.038 (0.52)	-0.03 (0.58)	-0.07 (0.24)	0.00 (0.94)	1.000
11	LAGGEDROA	0.004 (0.95)	-0.08 (0.144)	-0.02 (0.79)	**0.11 (0.06)**	**-0.22 (0.00)**	-0.04 (0.48)	-0.04 (0.47)	0.05 (0.38)	**0.139 (0.02)**	**0.24 (0.00)**
12	LOSS	**-0.17 (0.00)**	-0.01 (0.93)	**-0.19 (0.00)**	0.04 (0.51)	0.06 (0.36)	0.03 (0.62)	-0.00 (0.98)	0.04 (0.58)	**-0.17 (0.00)**	0.05 (0.42)
13	PPE	-0.07 (0.26)	0.05 (0.37)	-0.03 (0.61)	0.03 (0.62)	-0.04 (0.51)	**0.38 (0.00)**	**0.33 (0.00)**	**0.33 (0.00)**	0.10 (0.12)	**0.26 (0.00)**
14	NCF	-0.03 (0.65)	-0.06 (0.31)	0.11 (0.09)	0.10 (0.11)	-0.08 (0.21)	0.04 (0.49)	0.01 (0.92)	0.05 (0.41)	0.01 (0.82)	**0.37 (0.00)**
15	ACMEET	**0.19 (0.00)**	**0.18 (0.00)**	-0.03 (0.60)	0.01 (0.91)	**0.24 (0.00)**	-0.04 (0.46)	**0.17 (0.00)**	**0.19 (0.00)**	0.04 (0.54)	0.01 (0.91)
16	TACF	**-0.18 (0.00)**	-0.14 (0.02)	-0.14 (0.03)	**0.33 (0.00)**	-0.06 (0.37)	0.06 (0.36)	-0.00 (0.99)	0.06 (0.35)	**-0.24 (0.00)**	**0.35 (0.00)**
17	ANALYST	**0.58 (0.00)**	**0.32 (0.00)**	**0.13 (0.04)**	-0.07 (0.27)	-0.01 (0.82)	0.07 (0.27)	0.04 (0.48)	0.06 (0.35)	**0.66 (0.00)**	-0.08 (0.20)
18	ACEXP	0.04 (0.55)	**0.19 (0.00)**	-0.09 (0.12)	-0.03 (0.61)	0.01 (0.85)	0.02 (0.78)	**0.37 (0.00)**	0.01 (0.89)	**0.11 (0.07)**	0.03 (0.67)
19	BODIND	**0.11 (0.06)**	**0.21 (0.00)**	**-0.11 (0.07)**	-0.03 (0.57)	**0.14 (0.02)**	0.06 (0.31)	**0.2 (0.00)**	**0.17 (0.00)**	**0.279 (0.00)**	**-0.14 (0.02)**
20	BODSIZE	**0.31 (0.00)**	**0.37 (0.00)**	**0.09 (0.14)**	**-0.08 (0.17)**	**0.18 (0.00)**	**-0.06 (0.29)**	**0.2 (0.00)**	**0.15 (0.01)**	**0.56 (0.00)**	**-0.12 (0.04)**
21	BODMEET	0.05 (0.45)	**0.12 (0.04)**	-0.04 (0.58)	0.03 (0.57)	0.00 (0.96)	0.01 (0.83)	0.05 (0.4)	-0.07 (0.19)	-0.03 (0.63)	0.067 (0.25)

		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
11	LAGGEDROA	1.000										
12	LOSS	**-0.19 (0.00)**	1.000									
13	PPE	0.04 (0.49)	0.06 (0.37)	1.000								
14	NCF	**0.31 (0.00)**	**-0.16 (0.01)**	**0.27 (0.00)**	1.000							
15	ACMEET	-0.08 (0.17)	-0.06 (0.33)	0.07 (0.21)	0.08 (0.15)	1.000						
16	TACF	**0.11 (0.06)**	**0.24 (0.00)**	**0.15 (0.02)**	**0.46 (0.00)**	0.08 (0.18)	1.000					
17	ANALYST	**0.07 (0.19)**	**-0.16 (0.01)**	0.05 (0.47)	-0.00 (0.96)	**-0.17 (0.01)**	**-0.22 (0.00)**	1.000				
18	ACEXP	-0.06 (0.31)	0.05 (0.43)	-0.02 (0.76)	-0.04 (0.46)	**0.20 (0.00)**	-0.07 (0.23)	**0.11 (0.05)**	1.000			
19	BODIND	0.018 (0.17)	-0.08 (0.13)	-0.07 (0.22)	-0.06 (0.25)	0.08 (0.17)	**-0.25 (0.00)**	**0.27 (0.00)**	**0.04 (0.47)**	1.000		
20	BODSIZE	-0.05 (0.44)	**-0.16 (0.01)**	-0.01 (0.85)	-0.06 (0.28)	**0.21 (0.00)**	**-0.27 (0.00)**	**0.53 (0.00)**	**0.12 (0.04)**	0.06 (0.27)	1.000	
21	BODMEET	-0.03 (0.63)	**0.13 (0.03)**	0.06 (0.31)	-0.01 (0.92)	**0.16 (0.01)**	**0.16 (0.01)**	-0.04 (0.45)	0.03 (0.57)	0.08 (0.17)	**-0.13 (0.03)**	1.000

Complementary vs. Substitutive test

There is a lack of research examining the complementary or substitutive nature of disclosure quality and corporate governance (Brown et al., 2011). Given that both disclosure and governance may be effective monitoring tools, the present study intends to observe the basic relationship between these two governance mechanisms. This present study performed several tests in this section. Firstly, following Vafeas (2005, p. 1105), a complementary link is detected when the correlation shows a positive relationship, while substitutive roles are made clear when the direction of the correlation is negative. As can be seen from the pairwise correlation table, two disclosure quality proxies, namely IRAWARD and FLSCORE constantly show a complementary relationship with audit committee characteristics and board characteristics (e.g. ACSIZE, ACIND, ACMEET, ACEXP, BODSIZE, BODMEET, BODIND). The complementary effect is also observed between the first and second proxy for disclosure quality (i.e. IRAWARD and FLSCORE) and external governance (i.e. ANALYST and BIG4). Nonetheless, substitutive relationships are signified between the

third proxy for disclosure quality, namely AFA, and internal governance mechanisms. Specifically, AFA is substitutive with ACSIZE, ACEXP, ACMEET, BODMEET and BODIND in providing monitoring roles over firms, however, AFA offers a complementary relationship with ACIND and BODSIZE. With regard to the link between AFA and external mechanisms, a complementary relationship is reported between AFA and ANALYST, while a substitutive link is documented between AFA and BIG4.

Secondly, this present study includes interaction terms in the regression model to identify whether disclosure quality affects the relation between internal governance variables and earnings management. Following Zaman et al. (2011), the composite measures for audit committee characteristics was used as a proxy for audit committee quality (ACQUALITY). [76] Dummy variable is used to measure board of director quality (BODQUALITY). [77] Interaction variables such as ACQUALITY*BODQUALITY*DQ, ACQUALITY*DQ, and BODQUALITY*DQ are then created and included in the regression. [78] These interaction terms are developed to examine whether disclosure quality has complementary or substitutive effect to internal governance in deterring earnings management. Complementarity between disclosure quality and internal governance is presumed when the interaction effects (e.g. DQ*BODQUALITY; DQ*ACQUALITY and DQ*ACQUALITY*BODQUALITY) revealed significant negative relationship with earnings management, while substitutability is observed when the interaction terms (e.g. DQ*BODQUALITY; DQ*ACQUALITY and

[76] ACQUALITY is 1 if Audit committee size is equal or more than 3, percentage of audit committee independent is 100%, number of audit committee meeting is equal or more than 3 and at least one of audit committee members are having financial expertise, otherwise 0.

[77] BODQUALITY is 1 if board size is below the median, the percentage of independent directors on the board excluding the chairman is more than 50% , the number of board meeting is above the median.

[78] DQ represent disclosure quality of the firms, and was measured using the IRAWARD, the number of forward looking information and the analyst forecast accuracy. DQ in the interaction terms will be replaced by these 3 proxies for disclosure quality interchangeably.

DQ*ACQUALITY*BODQUALITY) revealed significant positive relationship with earnings management. Given that disclosure quality and internal governance can possibly have a substitutive or complementary effect in reducing earnings management, this present study will not make any prediction on the sign of the coefficients. The F-test is then conducted on the interaction terms to identify whether it make significant contribution to the model. Partial of the results are tabulated in Table 4-4.

When IRAWARD is used as a proxy for disclosure quality, it shows that the BODQUALITY*ACQUALITY*IRAWARD is insignificant. This demonstrates that there is no concrete evidence on the potential complementary or substitutive effect between disclosure quality (e.g. IRAWARD) and internal governance (e.g. BODQUALITY and ACQUALITY) in reducing earnings management. The F-test also revealed insignificant p-value, indicating that BODQUALITY*ACQUALITY*IRAWARD does not make significant incremental to the model. Variable BODQUALITY*IRAWARD also reported insignificant results, hence suggesting that there is no complementary or substitutive relationship between BODQUALITY*IRAWARD in reducing MJONES. However, ACQUALITY*IRAWARD reported significant negative relationship at $p<0.05$. This finding indicates that ACQUALITY*IRAWARD is negatively related to MJONES, hence suggesting complementary relationship between ACQUALITY and IRAWARD in reducing MJONES. When disclosure quality is measured using FLSCORE and AFA, it indicates that all interaction terms are insignificant, hence revealed insignificant influence the interaction terms in mitigating earnings management.

Table 4-4 : Partial Results of Interaction Terms

Variable	(a)Main effect			(b)Moderating effect			(c)F-test[79]
DV=MJONES	Coefficient	t	p-value	Coefficient	t	p-value	
DQ=IRAWARD							
BODQUALITY	1.118	1.52	0.13	-0.224	-0.19	0.84	
ACQUALITY	0.318	0.34	0.733	1.946	1.53	0.127	
IRAWARD	-1.67	-2.2	**0.02****	0.507	0.40	0.693	
BODQUALITY*ACQUALITY *IRAWARD				-0.457	-0.18	0.854	F=0.03, p>F=0.8538
BODQUALITY*IRAWARD				3.276	1.37	0.172	F=1.88, p>F=0.1718
ACQUALITY*IRAWARD				-3.789	-2.61	**0.01****	F=6.82, p>F=**0.009*****
N=290	R^2=0.4866, F=3.8, p>F=0.000			R^2=0.5033, F=4.02, p>F=0.000			
DQ=FLSCORE							
BODQUALITY	1.081	1.47	0.144	-1.65	-0.97	0.33	
ACQUALITY	0.5903	0.61	0.544	1.116	0.68	0.49	
FLSCORE	-0.01	-1.7	**0.097***	-0.004	-0.29	0.773	
BODQUALITY*ACQUALITY *FLSCORE				0.008	0.43	0.669	F=0.18, p>F=0.66
BODQUALITY*FLSCORE				0.022	0.93	0.355	F=0.86, p>F=0.35
ACQUALITY*FLSCORE				-0.008	-0.54	0.58	F=0.3, p>F=0.58
N=290	R^2=0.4826, F=3.99, p>F=0.000			R^2=0.4883, F=3.47, p>F=0.000			
DQ=AFA							
BODQUALITY	0.446	0.71	0.479	1.35	1.77	0.078	
ACQUALITY	-0.281	-0.4	0.718	-0.73	-0.78	0.43	
AFA	-0.431	-1.9	0.55	-0.363	-0.84	0.401	
BODQUALITY*ACQUALITY *AFA				-1.239	-1.06	0.29	F=2.46, p>F=0.118
BODQUALITY*AFA				1.83	1.57	0.12	F=2.46, p>F=0.118
ACQUALITY*AFA				-0.358	-0.64	0.526	F=0.4, p>F=0.52
N=254	R^2=0.4809, F=4.32, p>F=0.000			R^2=0.4875, F=2.89, p>F=0.000			
The regression model for (a) main effect is: MJONES = DQ(IRAWARD/FLSCORE/AFA) + ACQUALITY + BODQUALITY + CONTROL VARIABLES + e. While the regression model for the (b) moderating effect is: MJONES = DQ(IRAWARD/FLSCORE/AFA) + ACQUALITY + BODQUALITY + INTERACTION TERMS + CONTROL VARIABLES + e.							

[79] F-test is also known as Wald test and performed in STATA using ***test*** command. The Variance Inflation Factor (VIF) for all models is below 10, suggesting no indication of multicollinearity.

4.4 Multivariate analysis: DQ and EM are exogenous

Table 4-5: OLS regression of earnings management on disclosure quality, corporate governance and control variables

DV=MJONES	Predicted sign	MODEL1	MODEL2	MODEL3	MODEL4	MODEL 5	MODEL 6	MODEL 7
Disclosure Quality		Coef	Coef	Coef	Coef	Coef	Coef	Coef
IRAWARD	-					**-2.158*** ***-2.85***		
FLSCORE	-						**-0.014** ***-2.04***	
AFA	-							**-0.43** ***-0.26***
Governance Variables								
ACSIZE	+/-			-0.75 *-0.42*	-0.98 *-0.53*	-1.350 *-0.77*	-1.14 *-0.60*	-1.99 *-1.14*
ACEXP	-			0.55 *0.56*	0.54 *0.54*	0.355 *0.35*	0.76 *0.74*	-0.07 *-0.06*
ACMEET	-			**5.28*** ***3.13***	**5.34*** ***3.03***	**6.055*** ***3.32***	**5.49*** ***3.13***	**5.118*** ***2.65***
ACIND	-			-0.38 *-0.35*	-0.501 *-0.48*	-0.536 *-0.51*	-0.25 *-0.24*	-0.78 *-0.78*
BODIND	-		0.023 *0.79*		0.018 *0.69*	0.016 *0.62*	0.029 *1.01*	-0.023 *-0.88*
BODMEET	-		0.026 *0.25*		-0.035 *-0.34*	-0.007 *-0.07*	-0.009 *-0.10*	-0.09 *-0.90*
BODSIZE	+/-		0.103 *0.60*		0.002 *0.02*	0.015 *0.09*	0.079 *0.44*	-0.168 *-1.18*

Table 4-5 Continued

	Predicted sign	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6	MODEL7
Firm-specific variables								
LNMCAP	**+/-**	**0.843***	**0.738**	**0.96****	**0.953****	**1.119*****	**0.98****	**0.88****
		1.17	***1.49***	***2.16***	***2.04***	***2.42***	***2.11***	***2.02***
DTA	+	-0.006	-0.005	-0.002	-0.002	-0.006	-0.003	0.013
		-0.22	*-0.18*	*-0.06*	*-0.08*	*-0.21*	*-0.09*	*0.55*
CHGEINSALES	-	-0.739	-0.718	-0.808	-0.77	-0.608	-0.78	0.142
		-1.34	*-1.36*	*-1.39*	*-1.37*	*-1.13*	*-1.37*	*0.27*
LAGGEDROA	+/-	0.058	0.057	0.07	0.06	0.059	0.06	**0.09****
		1.22	*1.20*	*1.50*	*1.44*	*1.18*	*1.22*	***2.02***
PPE/LTA	+	**-1.48***	**-1.54***	**-1.649***	**-1.708***	**-1.757***	**-1.84****	**-1.34***
		-1.72	***-1.72***	***-1.88***	***-1.92***	***-2.03***	***-2.04***	***-1.66***
NCF/LTA	-	-0.07	0.236	-0.719	-0.88	-1.642	-0.49	**-8.83***
		-0.01	*0.04*	*-0.14*	*-0.16*	*-0.31*	*-0.09*	***-1.71***
ANALYST	+/-	-0.087	-0.098	**-0.128***	-0.129*	-0.07	-0.102	-0.09
		-1.20	*-1.37*	***-1.81***	*-1.83*	*-0.97*	*-1.43*	*-1.55*
TACF/LTA	**+**	**44.48*****	**45.13*****	**44.69*****	**45.35*****	**45.181*****	**46.55*****	**35.22*****
		4.00	***3.86***	***4.01***	***3.93***	***3.92***	***4.06***	***3.54***
LOSS	+	-1.592	-1.67	-1.88	-1.88	-2.175	-1.88	-1.60
		-0.90	*-0.96*	*-1.07*	*-1.08*	*-1.25*	*-1.07*	*-0.94*
BIG4	-	0.67	0.38	-0.126	-0.045	-0.906	-0.165	-0.39
		0.27	*0.15*	*-0.05*	*-0.02*	*-0.36*	*-0.07*	*-0.13*
YEAR 2007	+/-	0.508	0.489	0.33	0.38	0.349	0.58	0.26
		0.46	*0.44*	*0.31*	*0.36*	*0.33*	*0.55*	*0.27*
YEAR 2006	**+/-**	0.572	0.63	0.415	0.41	0.406	0.711	0.47
		0.59	*0.66*	*0.44*	*0.44*	*0.44*	*0.77*	*0.54*
YEAR 2005	**+/-**	-0.618	-0.615	-0.612	-0.64	-0.65	-0.69	-0.33
		-0.74	*-0.73*	*-0.73*	*-0.76*	*-0.79*	*-0.84*	*-0.43*

Table 4-5 Continued

	Predicted sign	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6	MODEL7
TECHNOLOGY	**+/-**	-1.66 *-1.76*	**-1.73*** ***-1.65***	-1.018 *-1.04*	-1.122 *-1.02*	-0.95 *-0.88*	-1.46 *-1.28*	-0.89 *-0.89*
TELECOM	**+/-**	1.63 *0.50*	1.708 *0.53*	2.15 *0.67*	1.98 *0.62*	1.27 *0.40*	1.82 *0.56*	3.46 *1.18*
OIL AND GAS	**+/-**	-0.877 *-0.73*	-1.01 *-0.83*	-0.65 *-0.55*	-0.708 *-0.57*	-1.061 *-0.87*	-0.277 *-0.23*	0.069 *0.07*
CONSGOODS	**+/-**	-1.14 *-1.48*	-1.18 *-1.49*	-1.007 *-1.25*	-1.05 *-1.25*	-1.1 *-1.29*	-1.26 *-1.40*	-1.125 *-1.14*
CONSSERVICES	**+/-**	**1.36*** ***1.69***	1.26 *1.59*	**1.57*** ***1.84***	**1.49*** ***1.75***	1.165 *1.38*	1.18 *1.45*	**1.37*** ***1.76***
HEALTHCARE	**+/-**	**17.02***** ***3.82***	**17.2***** ***3.84***	**18.19***** ***4.22***	**18.01***** ***4.08***	**17.94***** ***4.18***	**18.72***** ***4.27***	**21.29***** ***3.65***
UTILITIES	**+/-**	-0.114 *-0.11*	-0.142 *-0.13*	-0.216 *-0.21*	-0.06 *-0.06*	-0.47 *-0.45*	0.433 *0.36*	0.103 *0.11*
_cons		-9.28 *-1.22*	-9.908 *-1.27*	**-14.53*** ***-1.87***	**-14.68*** ***-1.83***	-15.97 *-1.98*	**-16.06***** ***-1.99***	-7.18 *-0.86*
N		290	290	290	290	290	290	254
F(28, 262)		4.02	3.65	4.59	4.19	3.92	4.14	4.26
PROB>B		0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-SQUARED		0.4726	0.4742	0.4951	0.4958	0.5111	0.5052	0.5062

(a) Because the data is non-panel type, the analyses are performed using pooled data. It is worth noting that Toledo (2010), Al-Farooque et al. (2010) and Cornett et al. (2009) use cross sectional data or pooled unbalanced data when they run the 3SLS/2SLS estimation to control for endogeneity.

(b) As a sensitivity analysis, Models Four, Five and Six were rerun excluding all corporate governance variables. Results revealed that, without controlling for corporate governance mechanisms, all disclosure quality variables are significantly and negatively related to earnings management, which is measured using the modified Jones Model (result not reported).

(c) *p*-values are one-tailed for variables with an expected sign, and two-tailed for variables with an unidentified sign.

Table 4-5 presents the OLS regression for earnings management on disclosure quality and corporate governance. Earnings management is measured using MJONES and disclosure quality is measured using the IRAWARD, FLSCORE and AFA. Model One of Table 4-5 presents the OLS regression between MJONES and all control variables. The results reveal that LMCAP (coef = 0.86, $p<0.10$) has a bearing on the magnitude of MJONES. This finding, however, is contrary to those of Kent et al. (2010), who reported inverse link between firm size and earnings management, but in accordance with studies conducted by Lobo and Zhau (2006) and Jo and Kim (2007). In this instance, Lobo and Zhau (2006) argue that the complexity of operations in large firms leads to weaker earnings management detection and, thus, increases managers' propensity to manipulate earnings. In relation to other corporate characteristics, ROA (coef = 0.202, $p<0.05$), TACF (coef = 43.57, $p<0.01$) and HEALTHCARE (coef = 17.05, $p<0.01$), all bear significant positive relationships to MJONES. This implies that excessive profits and total accruals are associated with higher manipulation of earnings. This is consistent with findings reported in Riahi and Arab (2011). In addition, the positive relationship between HEALTHCARE and MJONES is in line with the Meyer et al. (2000) finding that the pharmaceutical industry uses flexibilities in accounting choices to reduce reported earnings due to the fear of the political cost pressure over the high profits that they reported in the previous year. The R^2 for Model One is 47.26%. With regard to other control variables including DTA, CHGEINSALES, LAGGEDROA, LOSS, BIG4, ANALYST, NCF/LTA, year dummies and certain industries (e.g. UTILITIES, TECH, TELECOM, OIL&GAS, and CONSGOODS) the findings are not statistically significant; therefore, statistically, they have no predictive ability in relation to deterring earnings management in UK firms.

When board characteristics (i.e., BODMEET, BODIND and BODSIZE) are added in Model Two, results show that the R^2 slightly increases from 47.26% in Model One to 47.42%. However, Model Two shows that the coefficients for BODMEET, BODIND and BODSIZE are not statistically significant in respect to constraining earnings management. The result for BODIND corroborates the findings of Kent at al. (2010), Park and Shin (2004) and Chtourou et al. (2001) who documented an insignificant relationship between the percentage of independent directors and earnings management; although this contradicts some other studies (e.g. Xie et al., 2003; Kao and Chen, 2004) that signify inverse relationships.

Model Three incorporates audit committee characteristics including ACMEET, ACIND, ACSIZE and ACEXP in the regression. Contrary to the hypotheses, Model Three indicates that ACEXP and ACMEET are positively related to earnings management, although only the latter is significant at $p<0.01$. As such, these findings demonstrate that compliance with the recommended norms in the UK Corporate Governance (2010) and Smith Recommendation 2003 in relation to ACMEET and ACEXP has an adverse effect on constraining managers' propensity to manipulate earnings. This finding contradicts some of the prior studies (e.g. Kent et al., 2010) and could be explained in several ways:

(i) Some of the literature argues that high compliance with the UK Corporate Governance code is merely due to "ticking the box" activities, while at the same time highlighting the importance of considering the various unique needs of each firm's governance system (Arcot et al., 2010; Siregar and Utama, 2008; Arcot and Bruno, 2006).

(ii) It is acknowledged that the definitions of good and bad governance practices are still vague (Brickley and Zimmerman, 2010; Heitzman et al., 2010), hence it is not surprising to see contradictory findings with regard to the predictive ability of corporate governance in curbing earnings management. For example, having a high number of audit committee members is not necessarily good because it also makes the committee vulnerable to the free-rider issue.

(iii) The effectiveness of an audit committee primarily depends on the effectiveness of the board of directors. Given that BOD characteristics (e.g. BODIND, BODSIZE, BODMEET) are insignificant in curbing earnings management (the R^2 increases only 0.0016%), it is suggested that audit committees are not able to offer effective monitoring roles in the absence of the serious roles of the BOD in constraining earnings management; even though their composition, number of meetings, expertise and size are in compliance with the Smith Recommendation (2003) and the UK Corporate Governance Code (2010). In other words, when monitoring by a board of directors is not helpful in reducing earnings management, it is not surprising to see that audit committees also fail to carry out effective monitoring functions, given that the latter is a subset to the former.

(iv) Audit committees (where the majority of them are entirely comprised of external directors) mainly rely on the information prepared for them in order to provide necessary monitoring. They, therefore, have less information advantage as compared to the internal directors (Adams et al., 2009). It is very unlikely that internal directors will let external directors know that they have been engaged in in earnings management (Armstrong et al., 2010). This would make it nearly impossible for external directors to

detect earnings management. For that reason, the compliance with audit committee characteristics as recommended by the Smith Report (2003) and the UK Corporate Governance Code (2010) might be, to some extent, useful in helping companies in structuring their internal governance system; however, it is only marginally beneficial in constraining earnings management.

The results when both audit committee and board characteristics were combined in one regression are presented in Model Four. After controlling for audit committee and board characteristics, the results show that the R^2 increases to 49.58%, as compared to 47.26% when only variables for firm-characteristics were controlled in Model One. All audit committee characteristics revealed insignificant result, except ACMEET which reported significant positive association to MJONES at $p<0.01$.

The first proxy for disclosure quality, namely the receipt of the Investor Relations Magazine Award (IRAWARD), is then added to the regression and the result is laid out in in Model Five. After controlling IRAWARD, the result reveals that IRAWARD is significantly and negatively related to earnings management at $p<0.01$ (coef = -2.158, t-stat =-2.85). This finding indicates that IRAWARD provides stronger complementary roles than corporate governance in reducing managers' propensity to manipulate earnings. Results for corporate governance variables remain unchanged, as in Model Four, after IRAWARD is included in the model. The R^2 increases to 51.11%, as compared to 49.58% in Model Four, hence implying that IRAWARD carries a greater predictive ability in improving the goodness of fit of the model. Similar results are also reported when FLSCORE is employed as a proxy for disclosure quality. Model Six recorded an inverse association between FLSCORE and MJONES at

p<0.05, with the coef = -0.014 and t-statistics = -2.04. The R^2 is 50.52%, which is higher than 49.58% R^2 reported in Model Four. Consistent with the findings in Models Five and Six, Model Seven also reveal that increases in AFA result in lower earnings management at p<0.05, with the R^2 equivalent to 50.62%. This finding implies that firms with high analyst forecast accuracy engage less in earnings management. By and large, these findings are consistent with those of Jo and Kim (2007) and Lapointe-Antunes et al. (2006) who reported an inverse relationship between disclosure and earnings management in the US and Swiss context.

With regard to the relationship between ANALYST and MJONES, ANALYST appears to show a significant link in Model Three and Model Four, where audit committee characteristics (according to the recommended norm in the Smith Report (2003)) are controlled. This implies that analyst following has a stronger influence in curbing earnings management in the presence of a credible audit committee, as analysts might have access to more private information. Nonetheless, the significant link between ANALYST and MJONES disappears when disclosure quality is controlled for in the model, thus signalling that disclosure quality has more effect than analyst following in controlling earnings management.

Overall, based on the results in Table 4-5, it can be concluded that high disclosure quality (using IRAWARD, FLSCORE and AFA as proxies) is effective in reducing managers' propensity to manipulate earnings, especially in a weak governance environment. In contrast to the prediction, ACMEET is consistently found to be positively related to earning management in Model Three to Model Seven at p<0.01. It is possible that firms in financial distress carry out more meetings and thus have more opportunity to plan earnings management.

4.4.1 Additional analyses

Several additional analyses were performed employing (i) different estimations, (ii) alternative measures for earnings management, (iii) redefined measures for corporate governance, (iv) a reduced sample (small vs. large sample), (v) another reduced sample (test sample vs. control sample), and (iv) other factors necessary to provide reasonable assurance for the current findings as well as to tackle several minor issues. [80]

(i) Tobit, truncated and robust estimations[81]

The current study recognises that the use of OLS estimation in the primary findings may cause bias, given that the nature of MJONES, which has been used as dependent variable, is zero truncated. Tobit or truncated regressions are therefore suitable for the purposes of the study, and this is consistent with Gul et al. (2009). Other alternatives include the robust regression, which is a non-parametric test that completely disregards the four main assumptions in the OLS estimation: normality, heteroskedasticity, multicollinearity and autocorrelation.[82] Models Five, Six and Seven were rerun using Tobit regression, truncated regression and robust estimation.

Using Tobit regression, results show that all DQ measures (i.e., IRAWARD, FLSCORE and AFA are significantly and negatively related to MJONES at $p<0.01$, $p<0.05$ and $p<0.01$ respectively, resembling the main results from OLS estimation. None of the governance

[80] Given that a simultaneous relationship is expected in this project, undermining the OLS findings, for the sake of brevity the full results for additional tests are not reported but are available from the author upon request.

[81] Tobit, truncated and robust regressions were performed using the following commands in STATA: (i) *Tobit dependent variable independent variable, ll ul robust* (ii) *truncreg dependent variable independent variable, robust* (iii) *rreg dependent variable independent variables.*

[82] An autocorrelation test was not performed because the dataset used in the current study is not a panel type.

variables show significant results except for ACMEET, which shows a consistent positive relationship with MJONES. This is consistent with the primary findings reported in Table 4-4. Models Five, Six and Seven were also rerun using truncated regression and robust regression. Results are qualitatively unchanged. It can be concluded that the OLS results in Table 4-4 are robust and not driven by specific estimation method.

(ii) Alternative measures for earnings management

As well as using MJONES as reported in Table 4-4, another test was performed using the Jones Model (JONES) and Performance-Adjusted Discretionary Accruals (PERFORM-ADJ) as proxies for earnings management. The results are qualitatively similar when JONES is used as a proxy for earnings management. IRAWARD, FLSCORE and AFA are all inversely related to JONES at $p<0.05$, $p<0.05$ and $p<0.01$ respectively. Similarly, the frequency of audit committee meetings is the only governance variable that is positively and significantly related to earnings management. With regard to the PERFORM-ADJ variable, all disclosure quality measures reveal that is has a negative relationship with earnings management, although none of the relationships are significant. Nevertheless, in addition to ACMEET, that consistently reports a significant positive relationship with earnings management when PERFORM-ADJ is employed, ACIND also reports a significant negative relationship to earnings management at $p<0.1$, $p<0.1$ and $p<0.05$ respectively when IRAWARD, FLSCORE and AFA are used interchangeably in the model. This implies that, when PERFORM-ADJ is used as a proxy for earnings management, the predictive ability of disclosure quality in respect to deterring earnings management is less powerful than that of ACIND. In addition, the result demonstrates that compliance with the recommended benchmark for audit

committee independence is influential in reducing managers' propensity to manipulate earnings.

(iii) Redefined corporate governance measures

Models Five, Six and Seven of Table 4-4 were rerun using redefined corporate governance measures, which included the following:

(a) BODIND = 1 if the percentage of independent directors (excluding chairman) is more than 50%, 0 = if otherwise
(b) BODSIZE = 1 = high board size, 0 = low board size; the cut off is based on the median for the number of board members
(c) BODMEET = 1 = high board meeting frequency, 0 = low board meeting frequency; the cut off is based on the median of number of board meetings per year

Additionally, the original Models Five, Six and Seven in Table 4-4 were rerun using alternative measures for audit committee, as follows:

(a) ACSIZE = number of audit committee members
(b) ACIND = percentage of independent directors in audit committee
(c) ACMEET = number of audit committee meeting in a year
(d) ACEXP = percentage of audit committee member with financial expertise

Moreover, in another round of sensitivity analyses, board and audit committee measures are redefined in Models Five, Six and Seven:

(a) BODIND = dummy, 1 = if the percentage of independent directors (excluding chairman) is more than 50%, 0 = if otherwise

(b) BODSIZE = dummy, 1 = high board size, 0 = low board size; the cut off is based on the median for number of board members.

(c) BODMEET = dummy, 1 = high board meeting frequency, 0 = low board meeting frequency; the cut off is based on the median of number of board meetings per year.

(d) ACSIZE = number of audit committee members

(e) ACIND = percentage of independent directors in audit committee

(f) ACMEET = number of audit committee meeting in a year

(g) ACEXP = percentage of audit committee members with financial expertise

The results show that the use of these alternative governance definitions causes no major alterations to the primary results, except that the significant link in ACMEET disappears when ACMEET is redefined using $ACMEET^{A}$, suggesting that the positive relationship between ACMEET and MJONES is not robust.[83] More importantly, this finding highlights that compliance with the Smith Report (2003) recommendations for the frequency of audit committee meetings is detrimental to the reduction of earnings management, but that the actual number of meetings does not have any significant effect on MJONES. Consistent with the main findings in Table 4-4, all disclosure quality proxy variables (i.e., IRAWARD, FLSCORE and AFA) show negative relationships with MJONES,

[83] The reasons for using a dummy for audit committee characteristics in the primary findings (Table 4-4) are as follows: (i) the dummy for audit committee characteristics is regulatory driven (i.e. determined by the recommendations in the Smith Report, 2003); (ii) the transformation of data to dummies solves the issue of outliers; (iii) the use of dummies does not change the result and the additional tests using alternative measures for audit committee characteristics and board characteristics show no alteration to the results, highlighting that the result are not derived from the specific measures of Corporate Governance; (iii) the contribution made by this project is more apparent when the measurement is derived based on specific recommendations in the UK Corporate Governance Code or the Smith Report (2003), hence conclusions can be made in light of the UK corporate governance environment.

In addition to the above mentioned tests, following Zaman et al. (2011), the present study also tries to construct composite measures for audit committee quality (ACQUALITY) as recommended by the Smith Report (2003): audit committee quality (ACQUALITY) is 1 if ACSIZE>=3, ACIND>=1, ACEXP>=1 and ACIND>=1, 0 if otherwise. Using this composite measure of audit committee quality, this study finds that audit committee quality (ACQUALITY) is insignificant in influencing earnings management. However, this result is in contrast to Kent et al. (2010) who demonstrated a significant negative association between composite measures of audit committee variables and discretionary accruals. [84]

(iv) Reduced sample

Models Five, Six and Seven were also re-run using reduced sample forms including (i) large and small firms (based on the median of log market capitalisation) and (ii) test and control samples. Using large firms as sample, results show that two disclosure quality proxies (IRAWARD and FLSCORE) are negatively related to earnings management, although none of them show significant relationships. Nevertheless, the third proxy for disclosure quality, namely AFA, is positively related to MJONES. It is worth noting that the positive relationship between AFA and MJONES might be due to the potential reverse causality in these two variables, because some studies found that the accuracy of analyst forecasts are due to earnings management activities (Iatridis and Kadorinis, 2009; Hunton et al., 2006). Concerning corporate governance variables, similar to the main analysis, ACMEET is associated with higher earnings management in a company.

[84] Kent et al. (2010) developed a composite measure for audit committee as follows: 1 is scored if ACIND =100%, ACSIZE =>3, ACMEET=> sample mean of audit committee meeting, or ACEXP =>1, otherwise 0 is scored. The composite measure used by Kent et al. (2010) is largely similar to the one used by Zaman et al. (2011), except that Zaman et al. (2011) measure ACMEET =>3, which is similar to the recommended benchmark set by the Smith Report (2003).

In relation to small firms, all disclosure quality proxies show inverse relationships with MJONES although only the IRAWARD and AFA are significant at $p<0.05$ and $p<0.1$ respectively. At this stage, this study finds that the negative relationship between disclosure quality and earnings management is stronger in small firms than in large firms, indicating that the results are not biased towards large firms only.

Additional tests using test samples and control samples were also performed. The test sample is the group of the winners of the Investor Relations Magazine Award (IRAWARD), while the control sample group consists of the non-winners of the Investor Relations Magazine Award (IRAWARD). Replicating Models Six and Seven, both test sample and control sample groups show that both FLSCORE and AFA are negatively associated with MJONES although none of them show significant results. ACIND was found to be negatively related to MJONES in the test sample group at $p<0.05$ (coef =-4.49) and $p<0.05$ (coef = -4.47) when FLSCORE and AFA are respectively used in the model. However, ACIND reports an insignificant relationship in the control sample group.

(v) Others

In addition to the abovementioned tests, the present study also uses alternative measures for control variables, replacing, for example, ROA with ROE and ROS; DTA with DTE and LMCAP with LSALES in Models Five, Six and Seven. It is important to note that the results are qualitatively similar in that disclosure quality remains significantly and negatively related to earnings management, while corporate governance variables are affected to a greater extent by this change.

Given that the sample is unique per year, but non-unique per period, the present study is concerned over the stickiness issue of disclosure and corporate governance data (Brown et al., 2011). A firm's pattern of disclosure and corporate governance practices may not change every year, thus the significant relationship between disclosure quality and earnings management might be derived from the inclusion of the same firms over a few years. Although the sample is non-panel type (hence the stickiness issue is obviously not very apparent as compared to panel data type), the present study performs an additional test using unique samples only. In the case that more than one firm is involved in the sample, the present study retains only the data for the most recent year, while the data for the other years is deleted. Results reveal that IRAWARD, FLSCORE and AFA are negatively related to MJONES, although only the first (IRAWAWRD) shows a significant relationship at $p<0.01$. In similarity to the primary findings, all other governance variables offer insignificant relationships with MJONES except for ACMEET, which shows a significant positive relationship with MJONES.

The current study also acknowledges that a bias might exist in the results, given that the winners for IRAWARD in corporate governance (A19) and IRAWARD for corporate social responsibility (A20) are included in the sample.[85] In this regard, an additional test was performed excluding the firms in A19 and A20 and their respective matched-pairs. Again, the results are largely similar to the primary findings that IRAWARD, FLSCORE and AFA consistently show negative relationships with MJONES, while ACMEET is documented as having a significant positive association with MJONES in all models.

[85] Detail for the Investor Relations Award category breakdown is available in Chapter 3.

The present study also recognises that some of the literature examines the relationship of managerial shareholding (e.g. Beasley, 1996; Chtourou et al., 2001; Vafeas, 2005) and blockholders (e.g. Sánchez-Ballesta and García-Meca, 2007; Vafeas, 2005) to earnings management. Director's shareholding is one of the classical tools suggested by agency theory for the alignment of managers' and shareholders' interests (Jensen and Meckling, 1976). In this case, managers are prone to exercise independent judgement, given that all of a firm's decisions have an impact on their wealth (Minow and Bingham, 1995). Beasley (1996) finds that non-executive director shareholding is influential in reducing financial fraud in US firms. Blockholders also have the potential to play monitoring roles over firms, given that they have voting power to determine who will be on the board (Ronen and Yaari, 2008, p. 223). This subsequently reduces the conflict of interest and deters earnings management. Given that the number of samples in the present study is 290, while the number of variables currently included in the model is 28, there would be concern over the degree of freedom if additional variables are included in the model. Therefore, as an additional test, the present study reruns Models Six, Seven and Eight incorporating SUBSOWN & NOSUBSOWN variables. Other results are qualitatively similar to the main findings. However, SUBSOWN and NOSUBSOWN are both found to be insignificant in these three models. In addition, the present study also makes an attempt to include BODSHR and ACSHR in Models Five, Six and Seven. The results demonstrate that disclosure quality, corporate governance and control variables are qualitatively unchanged, while BODSHR consistently reports a negative association with MJONES at $p<0.05$ in Models Five and Six. In relation to ACSHR, it offers no significant relationships in Models Five and Six, but shows an

inverse relationship to MJONES at $p<0.05$ in Model Seven. BODSHR also shows an insignificant relationship with MJONES in Model Seven.

In relation to another issue, according to Morck et al. (1988) the effects of incentives and entrenchment could possibly lead to a non-linear relationship between managerial ownership and firm performance. This notion is also supported by the findings of Farooque et al. (2007b). The same concern is also shared in respect to blockholder ownership and has been discussed by Lo et al. (2010) in their earnings management study. With regard to blockholder ownership, Lo et al. (2010, p. 232) argue that the incentives to manipulate earnings will be reduced in the presence of high blockholder ownership, given that blockholders feel they are extorting their own wealth. On the other hand, Shleifer and Vishny (1997) point out that concentrated ownership creates incentives for large shareholders to distort the minority shareholders' interests. Having created a squared variable for SUBSHR, NOSUBSHR, ACHSR and BODSHR, a non-linear regression was rerun for Models Five, Six and Seven. The results indicate that there are concave relationships between normal and squared variables, where the original variables show a negative relationship with earnings management and the squared variables show a positive relationship. However, none of them show significant results. Therefore, managerial ownership and blockholders do not have any non-linear impact on earnings management.

4.5 Simultaneity between disclosure and earnings management: two-stage least square (2SLS) regression

Table 4-6: 2SLS regression of earnings management

	Panel (A) DQ = IRAWARD		Panel (B) DQ= FLSCORE		Panel (C) DQ = AFA	
	MODEL1 MJONES	MODEL2 DQ(IRAWARD)	MODEL1 MJONES	MODEL2 DQ(FLSCORE)	MODEL1 MJONES	MODEL2 DQ(AFA)
Endogenous Variables						
MJONES *(fitted value)*		**-0.45*** *-4.86*		**-0.034*** *-2.77*		**-0.29*** *-3.68*
DQ (IRAWARD) *(fitted value)*	**-8.272*** *-4.19*					
DQ (FLSCORE) *(fitted value)*			**-0.1*** *-2.82*			
DQ (AFA) *(fitted value)*					**-9.058*** *-12.03*	
Exogenous Variables						
ACSIZE	-2.53 *-1.55*	**-2.95** *-2.35*	-2.36 *-1.30*	-0.186 *-1.04*	-1.642 *-1.19*	-0.66 *-1.24*
ACEXP	-0.17 *-0.18*	-1.03 *-1.31*	**2.32*** *1.78*	**0.242** *2.07*	**-5.55*** *-5.72*	**-0.66** *-2.33*
ACMEET	**8.25*** *4.37*	**5.99*** *3.95*	**6.62*** *3.64*	**0.397*** *3.23*	1.56 *1.02*	0.83* *1.69*
ACIND	-0.615 *-0.61*	-0.04 *-0.06*	1.17 *0.89*	0.193 *1.61*	0.15 *0.21*	-0.002 *-0.01*
ACMULT		**0.344*** *1.82*		0.011 *0.55*		**0.151** *2.02*
BODIND	0.001 *0.05*	-0.014 *-0.71*	**0.076** *2.17*	0.004 *1.42*	**-0.283*** *-9.65*	**-0.04*** *-2.70*
BODMEET	0.08 *0.71*	**0.166** *2.02*	0.193 *1.52*	**0.025*** *3.04*	0.03 *0.38*	0.031 *0.73*
BODSIZE	0.031 *0.21*	0.063 *0.63*	**0.513** *1.98*	**0.038** *2.41*	**-0.593*** *-5.34*	**0.127** *-2.50*
CHAIRNONEXE		0.242 *0.43*		0.105 *1.38*		0.192 *0.60*

CHAIRTEN		**-0.11*** ***-2.71***		-0.006 *-1.10*		-0.013 *-0.82*
CHAIRMULT		**0.246** ***2.08***		**0.04** ***2.46***		0.04 *0.78*
SUBSHR		0.01 *0.49*		-0.001 *-0.27*		0.01 *1.29*
NOSUBSHR		0.068 *0.55*		0.006 *0.31*		0.018 *0.36*
EARNVAR		**-0.563*** ***-2.97***		0.013 *0.76*		0.0002 *0.00*
Firm-specific variables						
LNMCAP	**1.54*** ***3.47***	**1.26*** ***4.66***	**1.19*** ***2.67***	0.043 *1.39*	**4.414*** ***9.91***	**0.71*** ***3.99***
ROA		0.05 *1.46*		0.002 *0.46*		0.017 *0.95*
LAGGED ROA	0.06 *1.27*		0.06 *1.47*		0.028 *0.76*	
DTA	-0.01 *-0.4*	-0.014 *-1.00*	-0.006 *-0.25*	-0.0004 *-0.19*	**-0.15*** ***-7.87***	-0.011 *-1.4*
CHGEINSALES	-0.613 *-1.20*		-0.79 *-1.46*		-0.206 *-0.64*	
PPE/LTA	**-2.042** ***-2.41***		**-1.518*** ***-1.87***		**-1.81*** ***-2.77***	
NCF/LTA	-1.596 *-0.30*		0.174 *0.04*		0.69 *0.19*	
ANALYST	0.1009 *1.10*	**0.137*** ***2.93***	0.05 *0.61*	**0.009*** ***1.69***	**0.155*** ***3.10***	-0.014 *-0.59*
TACF/LTA	**39.65*** ***3.53***		**43.95*** ***4.23***		**16.95** ***2.22***	
LOSS	-1.384 *-0.86*		-1.69 *-0.99*		-1.06 *-0.95*	
BIG4	-3.92 *-1.44*	**-3.33** ***-2.24***	-0.036 *-0.01*	**0.393** ***2.28***	0.396 *0.15*	-0.314 *-0.45*
YEAR 2007	0.347 *0.35*	-0.64 *-1.11*	1.78 *1.54*	0.11 *1.36*	**4.362*** ***5.90***	0.153 *0.57*
YEAR 2006	0.455 *0.51*	-0.05 *-0.09*	**2.52** ***2.14***	**0.24*** ***2.92***	**3.099*** ***4.76***	0.3008 *1.10*
YEAR 2005	-0.564	-0.2005	-1.06	-0.072	**-1.932***	-0.347

	-0.7	*-0.37*	*-1.31*	*-0.88*	***-3.63***	*-1.04*
TECHNOLOGY	-0.652	0.452	**-2.93****	**-0.265****	0.04	-0.133
	-0.60	*0.64*	***-2.36***	***-2.21***	*0.05*	*-0.44*
TELECOMMUNICATION	0.309	-1.43	2.149	0.116	**-54.33*****	-4.962
	0.11	*-0.71*	*0.73*	*0.42*	***-10.74***	*-1.59*
CONSUMERGOODS	-1.33	-0.948	**-2.66*****	**-0.213***	**-4.49*****	-0.748*
	-1.59	*-1.23*	***-2.74***	***-1.81***	***-5.71***	*-1.81*
CONSUMERSERVICES	0.255	-0.683	-0.747	**-0.156***	**2.94*****	0.376
	0.31	*-1.14*	*-0.74*	***-1.68***	***4.87***	*1.49*
HEALTHCARE	**17.49*****	**8.49*****	**23.18*****	**0.939*****	**14.86*****	**5.28*****
	4.32	***4.06***	***4.62***	***3.65***	***7.32***	***2.98***
UTILITIES	**-1.876***	**-3.263*****	**2.51***	0.053	**2.39*****	-0.44
	-1.76	***-3.21***	***1.72***	*0.50*	***3.01***	*-0.77*
OIL AND GAS	-1.96	**-2.28*****	2.31	0.154	**-3.493*****	-0.515
	-1.57	***-2.74***	*1.39*	*1.54*	***-4.07***	*-1.26*
_cons	**-18.137****	**-18.43*****	**-24.61*****	**1.89*****	**-43.09*****	**-6.419*****
	-2.24	***-4.41***	***-2.92***	***4.07***	***-6.50***	***-3.26***
N	290	290	290	290	290	254
F-stat/ LR Chi2	5.18	202.23	4.57	361.11	11.42	1.91
P	0.000	0.000	0.000	0.000	0.000	0.004
R-sq/ Pseudo r2	0.5465	0.5030	0.5372	0.4189	0.7824	0.1188

Table 4.6 reports the 2SLS regression of earnings management on corporate governance and disclosure quality, with an assumption that disclosure quality (IRAWARD, FLSCORE and AFA) and earnings management (MJONES) are endogenous[86]. This analysis is performed to examine whether a simultaneity relationship exists between disclosure quality and earnings management. In the case of simultaneity, 2SLS regression is viewed as more robust, superior and consistent when compared to the results from the OLS regression. In Panel A of Table 4.5, IRAWARD is used as a proxy for disclosure quality, while panel B and C respectively employed FLSCORE and AFA to represent disclosure quality. Model One refers to the earnings management equation (MJONES is the dependent variable) while Model Two refers to the disclosure quality equation (i.e. IRAWARD, FLSCORE and AFA as dependent variables). Variables MJONES, IRAWARD, FLSCORE and AFA are replaced with their fitted value drawn from the first stage regression when they are located at the right side of the equation (being the independent variables).[87]

When IRAWARD is used as a proxy for disclosure quality (refer to Panel A) the MJONES equation (Model One, Panel A) reveals significant negative effects between IRAWARD and MJONES (coef=-8.272; t=-4.19) at $p<0.01$. Consistent with the OLS results in Table 4.4, this finding indicates that the recipients of IRAWARD are less, and the non-recipients are more, engaged in earnings management. At the same time, in the IRAWARD equation, (Model 2, Panel A), the MJONES variable has an inverse impact on IRAWARD (coef = -0.45; t=-4.86) at

[86] Inspired by Cornett et al. (2009) and Athanasakou and Hussainey (2010), the present study performs a Durbin-Wu Hausman test to detect for endogeneity. However, no indication of endogeneity is reported. Nonetheless, a reliance on the Durbin-Wu Hausman test alone might be insufficient, given that a simultaneity relationship might exist. Correspondingly, the 2SLS regression is undertaken to see the potential impact of a bi-directional relationship between disclosure and earnings management.

[87] For the sake of brevity, the first stage regressions are not reported in this thesis though they are available upon request from the author. It is also important to note that prior literature typically does not report the first stage regression: Chang et al. (2008) and Cornett et al. (2009), for example.

$p<0.01$. This implies that firms with high earnings management tend to disclose low quality information, as measured using IRAWARD. Hence, findings from Panel A suggest that causality can run in both directions between disclosure quality and earnings management and that both of them are endogenously determined. In other words, disclosure quality is one of the forces that influence earnings management, and earnings management is also a plausible factor in the determination of disclosure quality.

Similar to the OLS findings in Table 4.5, corporate governance variables did not show strong effects in reducing earnings management. In the earnings management equation (refer to Panel A, Model One), although ACSIZE, ACIND and ACEXP are negatively related to MJONES they are insignificant in the model. ACMEET, on the other hand, reports a contradictory result and a significant positive association with MJONES is documented.

With regard to the disclosure quality equation (Panel A, Model 2), several governance variables including ACMEET, ACMULT, and BODMEET demonstrate significant positive influences on the IRAWARD variable. In other words, audit committee meetings more than three times in a year, audit committee additional directorship and higher frequencies of board meetings are predictors of increasing disclosure quality. Contrastingly, a significant negative association between ACSIZE and IRAWARD is recorded at $p<0.05$. In the same vein, ACMULT, CHAIRTEN and CHAIRMULT also demonstrate results that divert from the prediction. By and large, IRAWARD is also determined by MJONES, governance factors and other corporate characteristics variables.

The simultaneous relationship between disclosure and earnings management also detected when disclosure quality is measured using FLSCORE (refer to panel B) and AFA (refer to panel C). When IRAWARD is replaced with FLSCORE, the earnings management equation (Model One, Panel B) reveals that FLSCORE is negatively related to MJONES at $p<0.01$ (Coef = -0.1, t=-2.82). This result is corroborates the findings from the OLS regression in Table 4-5: firms with a high FLSCORE will engage less in earnings management, and firms with a low FLSCORE will engage more in earnings management. The disclosure quality equation (Panel B, Model 2) reports that MJONES is significantly and negatively related to FLSCORE at $p<0.05$, indicating that firms with high earnings management tend to disclose less forward looking information than their counterparts. In this instance, firms that engage in earnings management probably choose to disclose less in order to make earnings management harder to detect and less visible to the public. This finding is consistent with that of Athanasakou and Hussainey (2010) who report that a firm's forward looking disclosure in the annual report increases with the firm's earnings quality.

In relation to AFA, Panel C reveals that AFA is negatively related to MJONES at $p<0.01$ in the MJONES equation (Model One, Panel C) and that MJONES also reports a significant negative relationship with AFA at $p<0.01$ in the AFA equation (Model 2, Panel C). This finding suggests that firms with high AFA, as a proxy for a firm's disclosure environment, engage less in earnings management than firms with low AFA (Model One, Panel C). Moreover, the findings from the AFA equation (Model 2, Panel C) also indicate that higher earnings management lowers AFA. Contrary to Iatridis and Kadorinis (2009), this study finds that UK firms did not manage earnings to meet or beat analyst forecasts.

One important finding is also shown in Model One, Panel C. While the OLS regression in Table 4-5 reports that ACMEET is positively related to MJONES at p<0.01 when AFA is used as a proxy for disclosure quality, this result disappears in the 2SLS regression. In addition, ACEXP that was insignificant in the OLS regression now reported a significant negative relationship with MJONES at p<0.01 (coef = -5.55). The inverse link indicates that a high ACEXP has adverse effects on earnings management. However, excessive ACEXP increases MJONES at p<0.1 (coef=2.32), when FLSCORE is included in the model (refer to Model One, Panel B), while this result is not statistically significant in Model Six, Table 4-5.

Overall, the 2SLS regression supports the hypothesis that there is an inverse bi-directional association between disclosure quality and earnings management. This finding is in line with that of Zhau and Lobo (2001) who recorded a negative simultaneous link between disclosure quality (measured using AIMR Ratings) and earnings management. Similar to the findings of the OLS regression (refer to Table 4-5), corporate governance variables measures do not show an improving effect on earnings management although an exception applies to ACEXP, which reports a negative relationship with MJONES at p<0.01 (refer to Model One, Panel C, Table 4-6). It is undeniable that some corporate governance variables show negative associations to MJONES; however, their coefficients are very weak, leading to insignificant results. This corroborates the findings of Basiruddin (2011) who reports an insignificant relationship between board and audit committee characteristics and earnings management in UK firms. As an additional sensitivity analysis, the present study also performs an IV regression in controlling for simultaneity as suggested by Li (2011) and by Roberts and Whited (2011). The findings generally corroborate the result of the 2SLS regression, where the ability of disclosure to deter earnings management is maintained

after controlling for simultaneity bias. Further detail about this test is available in the appendices.

4.6 Conclusion

In general, the first project reveals several important findings:

1. The finding revealed that the interaction terms ACQUALITY*IRAWARD revealed a significant negative relationship with MJONES, hence suggesting that ACQUALITY and IRAWARD are complementary each other in reducing earnings management. However, the interaction terms are insignificant when AFA and FLSCORE were used as proxies for disclosure quality.
2. The OLS regression consistently reveals that disclosure quality (measured using IRAWARD, FLSCORE and AFA) shows constantly outweighs other corporate governance mechanisms in deterring earnings management.
3. Board and audit committee characteristics provide a weak influence on earnings management. Given that both governance and disclosure prospectively reduce information asymmetry, the present study finds that both corporate governance and disclosure contribute to deterring earnings management to different extents. No perfect substitutive relationship is, therefore, offered within this system of governance. Corporate governance is probably more effective in reducing other forms of agency cost but not earnings management. This resembles the manifestation of agency conflict outlined by John and Senbet (1998, p. 376) who suggest that managers are "(i) expanding a span of control in the form of "empire building" at the expense of capital contributors or owners, and (b) for unduly conservative investments in form of seeking

safe but (inferior) projects to maintain the safety of wage compensation and their own tenure".

4. Analyst following is more effective in constraining earnings management when a firm posses a credible audit committee that meets the recommendations in the Smith Report (2003).
5. The 2SLS regressions confirm that disclosure quality and earnings management are endogenously determined, and that causality can run in both directions in the equation. Reverse causality is recorded, which implies that firms with high earnings management tend to disclose less information, probably to make earnings management less visible to the public.
6. The findings provide a better understanding of the implications of flexibility in disclosure choice and regulatory concerns regarding corporate governance for earnings management. Future research will have to control for disclosure quality when examining the link between corporate governance and earnings management.

5 Corporate Governance and Disclosure Quality

5.1 Introduction

High disclosure quality is beneficial to firms in the sense that it has potential for reducing the cost of capital (Botosan, 1997; Lev, 1992; Diamond and Verrecchia, 1991) and the cost of debt (Sengupta, 1998), and for increasing the share price (Lang and Lundholm, 2000; Welker, 1995; Healy et al., 1999). Nevertheless, firms will not enjoy all of these benefits if the information provided by managers is flawed. Due to the incentives for managers' to provide opportunistic voluntary disclosure, it is likely that the release of disclosure information is subject to distortion (Donnelly and Mulcahy, 2008). Poor disclosure information leads to the misallocation of resources in the capital market because it causes investors to rely on inaccurate information in making economic decisions. In this instance, sound corporate governance is viewed as having potential for reducing managerial opportunistic behaviour, and enhancing disclosure quality (Donnelly and Mulcahy, 2008; Cerbioni and Parbonetti, 2007).

The present study empirically examines whether internal governance mechanisms (i.e., board characteristics and audit committee characteristics) are associated with disclosure quality. Moreover, the influence of audit committee effectiveness (measured using the recommended norm from The Smith Report (2003) and The Blue Ribbon Recommendation (1999)) on disclosure quality will also be examined in this study. In addition, given that the association between internal governance mechanisms can either be complementary or

substitutive, this research tries to investigate such relationships in the light of the potential cost and benefit of the implementation of corporate governance. Furthermore, considering that internal governance mechanisms are basically interlinked and interrelated, the present study also takes into account the potential of a simultaneous relationship between the number of independent directors and disclosure quality that is highlighted in the prior literature. It is hoped that the findings will provide a better understanding of the impact of corporate governance on disclosure quality, especially in the UK context.

5.2 The theoretical framework of corporate governance and disclosure quality

Since disclosure is linked to a cost[89] and benefit[90] trade-off (Nelson et al., 2010; Cerbioni and Parbonetti, 2007; Lim et al., 2007; Healy and Palepu, 2001), managers have an incentives to distort a firm's disclosure information (Donnelly and Mulcahy, 2008; Beaver, 1998) and/or withhold some of a company's information (Christensen and Feltham, 2004, p. 511). In other words, management views cost and benefit analysis as crucial in determining what types of information to disclose (Nelson et al., 2010). On the one hand, a manager's disclosure decision is hoped to reduce the information asymmetry between agent and principal (Cheng et al., 2006; Peterson and Plenborg, 2006; Brown et al., 2004; Welker, 1995; Glosten and Milgrom, 1985). On the other hand, a manager's disclosure decision may depend on the various incentives that are tied to their personal benefits (Brockman et al., 2011; Rogers, 2008; Lang and Lundholm, 2000; Berger and Hann, 2007). Rogers (2008) finds that managers provide high disclosure in accordance with their plan to sell the firm's shares,

[89] According to Christensen and Feltham (2004, p. 511), the cost of disclosure includes "the cost of verifying and transmitting the manager's message" as well as "other costs that stem from actions of others such as competitors". They agree with Darrough and Stoughton (1994), who point out that disclosure entails both proprietary and litigation costs. Prior studies document that managers provide low quality disclosure when the proprietary cost is high (Botosan and Stanford, 2005; Bamber and Cheon, 1998).

[90] See section 2.2 for detail discussions on the benefits of increased disclosure.

and low disclosure when planning to buy the shares.[91] Berger and Hann (2007, p. 3) point out that managers tend to withhold information on low geographic earnings from investors and competitors in order to avoid extra monitoring and to portray companies as having no "unresolved agency problems". By the same token, managers also tend to hide bad news because it undermines their "managerial ability" (Langberg and Sivaramakrishnan, 2010, p. 606) and they wish to protect their careers (Kothari et al., 2009). Hope and Thomas (2008) find that managers hide segmental earnings disclosure when a firm's performance is poor. Nelson et al. (2010) suggest that managers tend to withhold sensitive information on remuneration, which potentially leads to excessive managerial compensation. These types of managerial opportunistic behaviours are the manifestation of a misalignment of interest, which creates an agency cost (i.e., residual loss).

These shortcomings occur due to the separation of ownership and control which creates agency problems such as information asymmetry and conflict of interest in the principal and agency relationship (Jensen and Meckling, 1976). Conflict of interest increases managers' "non-value maximising behaviour" (Shleifer and Vishny, 1988, p. 8), which subsequently increases agency costs and reduces a firm's value (Barako et al., 2006). In this instance, investors need adequate information in order to reduce the gap of information asymmetry (Cheng et al., 2006; Peterson and Plenborg, 2006; Brown et al., 2004; Diamond and Verrecchia, 1991), to understand corporate affairs, provide adequate monitoring on firms and reduce agency costs (Healy and Palepu, 2001; Bushman and Smith, 2001). They also need such information in order to understand the impact of managerial decisions on a firm's performance (Lombardo and Pagano, 2002, as cited in Hope and Thomas, 2008, p. 596).

[91] Kothari et al. (2009) claim that a firm's disclosure reduces information asymmetry and that this is reflected in the firm's share price.

Sound corporate governance is one of the potential means to control a manager's opportunistic behaviour by preventing them from distorting a company's disclosure (Donnelly and Mulcahy, 2008; Cormier and Martinez, 2006; Shen and Chih, 2007; Cerbioni and Parbonetti, 2007; Healy and Palepu, 2001; Bathala and Rao, 1995; Bonazzi and Islam, 2007; Maher and Andersson, 2000; Baek et al., 2009). Corporate governance helps to strengthen the function of the board by dampening the manager's self interest, thus preventing them from providing poor quality information to investors and reducing information asymmetry (Kanagaretnam et al., 2007). Internal governance mechanisms, such as the board of directors and audit committee, are expected to be influential in improving disclosure quality (Brown et al., 2011). In particular, a board of directors is considered essential to an overall governance system (Short et al., 1999) due to the power they have to make decisions on behalf of shareholders (Fama and Jensen, 1983). An audit committee is also expected to play significant roles in handling firm financial affairs (e.g. Engel et al., 2010; Dhaliwal et al., 2010). [92]

It has been established that disclosure is costly to managers; however, internal governance mechanisms are also not without cost. In ensuring that the cost of implementing internal governance does not exceed the cost of a firm's disclosure, it is imperative to know whether internal governance mechanisms are complementary or substitutive in relation to each other. Brown et al., (2011) described this relationship as "obscure". A sound audit

[92] Although prior literature (e.g. Kent et al., 2008; Nelson et al., 2010) views corporate governance as valuable in terms of improving a firm's disclosure quality, Kanagaretnam et al., (2007) point out that corporate governance may also have an adverse impact on disclosure quality; hence, suggesting that the association between corporate governance and disclosure quality is obscure.

committee actually originates from a sound board of directors. This suggests that internal governance mechanisms are basically interlinked (Vafeas, 2005), are complementary (Cerbioni and Parbonetti, 2007), and that they act to various extents in improving the quality of reporting. In particular, "…each governance mechanism plays a complementary role that is specifically effective in certain aspects or stages of agency problem solving" (Iwasaki, 2008, p. 533).

Contrastingly, if the roles of internal governance mechanisms are substitutive for one another, companies may concentrate on only one of them, to the expense of the other (Rediker and Seth, 1995, p. 88), in order to reduce the cost of implementation. These competing views are expected, given that each corporate governance mechanism is generally interrelated and endogenously determined (Brick et al., 2008, p. 3; Cornett et al., 2009) and that one mechanism may outweigh the other (Holm and Schøler, 2010; Brick et al., 2008)[93]in terms of their influence on disclosure quality. The need to investigate this potential relationship is more apparent in the context of the "comply and explain" approach that is taken in the UK. This approach allows more flexibility for managers to make a judgement in light of their unique needs, as compared with the needs of their counterparts, and the necessity for designing a governance system specifically for their firms (Holm and Schøler, 2010; Vafeas, 2005)[94] .

5.3 Literature review of corporate governance and disclosure quality

[93] In order to capture the potential simultaneity between governance mechanisms (i.e., disclosure quality and independent directors), the present study will use a system of simultaneous equation. More discussion about the potential endogenous link takes place in section 5.4 of this chapter.

[94] The mandatory approach to corporate governance has been criticized by prior literature because it was largely "redundant and costly" (Vafeas, 2005), and provides ambiguous benefit to the firms (Arcot and Bruno, 2006a).

Extensive research has examined the relationship between disclosure quality and the components of corporate governance in various countries including the United States (Felo et al., 2003; Karamanou and Vafeas, 2005; Wright, 1996), United Kingdom (Song and Windram, 2000; Li et al., 2008), Australia (e.g. Goodwin et al., 2009; Nelson et al., 2010; Kent and Stewart, 2008; Bassett et al., 2007), Malaysia (Haniffa and Cooke, 2002; Ghazali and Weetman, 2006), Hong Kong (Chen and Jaggi, 2000; Ho and Wong, 2001), Singapore (Eng and Mak, 2003; Cheng and Courtney, 2006) and Kenya (Barako et al., 2006).

It is worth mentioning that some prior research relies on a single measure for disclosure quality (e.g. Haniffa and Cooke, 2002; Ghazali and Weetman, 2006) and that the most popular measures used in prior studies include voluntary disclosure in the annual report (e.g., Haniffa and Cooke, 2002; Ghazali and Weetman, 2006; Chen and Jaggi, 2000; Eng and Mak, 2003; Lim et al., 2007) followed by AIMR ratings (e.g., Felo et al, 2003; Wright, 1996), management earnings forecast accuracy (e.g. Karamanou and Vafeas, 2005; Ajinkya et al., 2005) and analyst forecast accuracy (e.g. Byard et al., 2006; Beekes and Brown, 2006).

Prior studies also tend to focus on a limited number of corporate governance components, thus suggesting that their models suffer from a serious misspecification bias. By the same token, strong board characteristics, *per se,* are unlikely to improve disclosure quality without a strong contribution from the audit committee, to whom the responsibility of financial matters is delegated. For instance, Forker et al. (2002) do not control for board characteristics when examining the links between managerial ownership, CEO duality, audit committee and stock option disclosure. Cerbioni and Parbonetti (2007) focus on board characteristics but, at the same time, they neglect the potential for audit committees to

influence intellectual capital disclosure. Thus, they ignore the fact that a board also delegates responsibilities, with regard to disclosure and transparency, to the audit committee.

The shortcoming in Cerbioni and Parbonetti (2007) is also shared by Chen and Jaggi (2000) and Eng and Mak (2003) who only control for independent directors and ownership structures in their models and, thus, fail to count the audit committee's effect on disclosure. Hidalgo et al. (2011) do not include any other audit committee related variables (apart from audit committee size) in their research model on corporate governance and intellectual capital disclosure by Mexican firms. Therefore, they completely disregard other important aspects such as audit committee independence (which ensures independent decisions), audit committee meetings (that provide a platform for them to meet and convey ideas and judgements) and audit committee expertise (which is useful for detecting financial irregularities).

In a related vein, other studies concentrate on composite measures of corporate governance: the corporate governance index (e.g. Beekes and Brown et al., 2006).[95] Nelson et al. (2010) transform individual measures of corporate governance into factors using the method of principal components analysis, while Kent and Stewart (2008) and Goodwin et al. (2009) use individual measures of corporate governance in their study. The present study integrates both composite and individual measures of audit committee variables, in line with Zaman et al. (2011). It is also worth mentioning that some studies employ cross-

[95] The issues in corporate governance measurement is discussed in Chapter 2.

sectional data (e.g. Ghazali and Weetman, 2006; Baek et al., 2009; Haniffa and Cooke, 2002; Bassett et al., 2007) which could be improved by using longitudinal data.

Prior studies also tend to focus on certain aspects of disclosure such as intellectual capital (e.g. Li et al., 2008; Cerbioni and Parbonetti, 2007), share option disclosure (e.g. Forker et al., 2002) mandatory disclosure (e.g. Baek et al., 2009; Song and Windram, 2004[96]) and compensation disclosure (Laksmana, 2008). The present study is different from previous research because it focuses on broader, multifaceted and reliable disclosure quality measures such as IRAWARD, FLSCORE and AFA, which intend to capture both internal and external disclosure as well as offering more certainty regarding the controversial issue of suitable proxies for disclosure quality.[97]

Moreover, prior literature also recognises that the effectiveness of corporate governance mechanisms and practices vary from country to country (Doidge et al., 2007). Country specific characteristics play a significant role in ensuring the effectiveness of corporate governance. In support of this view, a meta-analysis by García-Meca and Sánchez-Ballesta (2010), using 27 empirical studies, highlights the need for strong regulatory roles. Their findings document that voluntary disclosure increases with the number of independent directors, particularly in countries that are highly protective of investor's rights. Contrastingly, and in light of their findings, Donnelly and Mulcahy (2008) claim that firms

[96] Song and Windram (2004) use the Financial Reporting Review Panel (FRRP) enforcement which was released to the firms that did not comply with mandatory requirements such as The Companies Act and the accounting standard.

[97] The present study assumed that FLSCORE is one form of internal disclosure and AFA is one form of external measure, while IRAWARD is possibly in between internal and external disclosure.

determine their corporate governance practices based solely on the cost and benefit trade-off and see regulatory requirement as less important.

More importantly, most of the prior studies neglect the potential for reverse causality between disclosure quality and corporate governance (e.g. Kent and Stewart, 2008; Eng and Mak, 2003; Haniffa and Cooke, 2002; Wright, 1999). Although few studies such as Lim et al. (2007), Cheng and Courtenay (2006) and Gul and Leung (2007) consider the endogeneity factor, using 2SLS regression, their research is based on other countries such as Australia and Singapore; where generalisation to the UK might be inappropriate, given that both corporate governance practices and their effectiveness vary depending on the country in which the firms operate (Doidge et al., 2007)[98]. Failure to consider this issue will hamper the model and render the OLS regression findings inconsistent.

Regarding the US capital market, prior studies document significant monitoring roles on the part of boards of directors and audit committees. In previous research in the US, there is supportive evidence that audit committee characteristics have a positive effect on disclosure (e.g. Felo et al., 2003; Wright, 1996 and Karamanou and Vafeas, 2005). Felo et al. (2003) investigate the relationship between disclosure quality and corporate governance in the US. Using AIMR ratings as a measurement of disclosure quality, alongside several corporate governance characteristics, they find that the percentage of audit committee members with financial or accounting literacy and the size of the audit committee are both important factors that influence the quality of disclosure.

[98] Doidge et al. (2007) demonstrated that country-specific characteristics had a stronger effect on corporate governance practices than firm-specific characteristics.

Wright (1996) finds that the number of shareholding audit committee members and the proportion of independent audit committee members are significantly related to the quality of disclosure, which is measured using AIMR ratings and Securities and Exchange Commission Accounting and Auditing Enforcement Releases for US firms. In their US study, Karamanou and Vafeas (2005) show that firms with active boards and audit committees tend to update their earnings forecasts more frequently and accurately than firms without active board and audit committee members. Their study employed the management earnings forecast as a proxy for disclosure quality and the analysis was conducted on a sample of 275 firms in the years 1995-2000.

Recently, a strand of research demonstrates that disclosure quality increases with more independent boards, in the US market (e.g. Baek et al., 2009; Ajinkya et al., 2005; Byard et al., 2006 and Laksmana, 2008). Based on 374 US firms listed in the S&P 500 Index, Baek et al. (2009) examine the relationship between corporate governance and disclosure quality, which is measured using the S&P Transparency and Disclosure survey. The S&P Transparency and Disclosure survey scores the firms based on 98 disclosure items that are reported in the firms' annual reports.[99] Using data from the year 2000, Baek et al. (2009) find that the presence of outside directors and institutional ownership were positively related to the S&P Transparency and Disclosure score. A negative relationship between managerial ownership and the S&P Transparency and Disclosure score is also documented.

Similarly, Ajinkya et al. (2005) examine how the numbers of independent directors and institutional investors relate to the management earnings forecast. They reveal that the

[99] Baek et al. (2009) noted that it is mandatory to disclose some of the 98 attributes.

percentage of outside directors and the level of institutional ownership are positively related to the frequency and accuracy of the management earnings forecast. Byard et al. (2006) investigate the association between corporate governance variables and analyst forecast accuracy. They document that firms with a greater number of independent directors consistently report a significant positive relationship to analyst forecast accuracy and that board size and CEO duality are negatively related to analyst forecast accuracy. More recently, Laksmana (2008) examines the influence of board and compensation committee characteristics on the disclosure of compensation practices. She finds that greater compensation disclosure reduces information asymmetry (measured by bid-ask spread and return volatility) and that independent boards provide more details about compensation practices.

The number of studies from the UK capital market is limited in comparison to the number of US studies. In the UK, both the board and the audit committee are viewed as important mechanisms to enhance disclosure quality. Li et al. (2008) investigate the association between corporate governance and intellectual capital disclosure using 100 UK listed companies from March 2004 to February 2005. Using a disclosure index of intellectual capital items, the total number of intellectual capital words as well as the percentage of total words as proxies for disclosure quality, their multivariate analysis reports that board independence, size of audit committee and frequency of audit committee meetings were found to be positively related to disclosure quality. They also record a negative relationship between ownership structure and disclosure quality. A further study by Donnelly and Mulcahy (2008) documents that voluntary disclosure increases with the number of independent directors and non-executive chairman, in the Irish capital market.

Song and Windram (2000) focus on the Financial Reporting Review Panel (FRRP) enforcement which is imposed to those firms which do not comply with The Companies Act and accounting standards as a measurement of good quality reporting. Using a match-paired sample, which comprised 54 UK firms in the year 1990-2000, they find that board size, proportion of non-executive directors, audit committee financial literacy, number of audit committee meetings and level of audit committee independence are all important factors in explaining the quality of financial statements. Forker (1992) empirically examines the relationship between employee share option scheme (ESOS) disclosure and corporate governance in the UK capital market. Based on the 100 largest and 100 smallest UK firms from 1987 to 1988, he finds that the quality of ESOS disclosure declines when the position of CEO and chairman are held by the same person.

In relation to European countries, very limited research is available in the literature. Based on biotechnology firms in Europe, Cerbioni and Parbonetti's (2007) study examines the association between board characteristics and intellectual capital disclosure, without controlling for any audit committee variables. They reveal that independent directors have a complementary effect on intellectual capital information. However, intellectual capital disclosure decreases with board size and board structure (measured as "1" if compensation, audit and nominating committee are dominantly comprised of independent directors). In light of these conflicting findings, they conclude that "the association between corporate governance and disclosure is complex and multifaceted" (p. 818). In describing the association between voluntary disclosure of earnings and corporate governance, Lakhal (2003) uses data from 117 listed firms in France from 1998 to 2001. She demonstrates that

the ownership structure, institutional investor ownership, and the utilisation of ESOS as one form of compensation are positive influences on the extent of voluntary disclosure of earnings. In contrast, she shows that CEO duality negatively influences the degree of voluntary disclosure of earnings. It seems that, when the CEO and chairman's position is held by the same person, the quality of voluntary disclosure of earnings is decreased.

From the Australian viewpoint, no consensus result is documented with regard to the association between governance and disclosure. Nelson et al. (2010) examine the association between corporate governance and stock option disclosure. They find that board independence is negatively related to stock option disclosure, while audit committee independence and effectiveness and compensation committee independence and effectiveness show a positive link with stock option disclosure. Using 127 Australian firms, Goodwin et al. (2009) empirically test the association between corporate governance and management forecast accuracy on the AIFRS transition. They find that CEO tenure is positively related to forecast error and that blockholder tenure is negatively related to forecast error. Bassett et al. (2007) examine the relationship between the comprehensiveness of ESOS disclosure and corporate governance characteristics. Using data from 500 listed firms in Australia for the year 2003, they document that CEO duality and the quality of auditors are the main determinants of the level of ESOS disclosure.

Another Australian study, Kent and Stewart (2008) examine the association between board and audit committee characteristics and the disclosure related to the transition of International Financial Reporting Standards (IFRS). They show that the frequency of board meetings and audit committee meetings, and auditor quality, are positively related to

disclosure. Kent and Stewart (2008) study employ OLS regression in their multivariate analysis, while it is more appropriate to use Poisson regression when the dependent variable is count data (e.g. Cerbioni and Parbonetti, 2007). Beekes and Brown (2006) examine the relationship between corporate governance quality and various measures of disclosure informativeness including disclosure timeliness, analyst forecast bias and accuracy. They use the Horwath Report 2002 corporate governance rankings as a proxy for corporate governance quality.[100] They find that firms with sound governance quality are associated with greater disclosure informativeness. An Australian study by Lim et al. (2007) examines the relationship between board composition and voluntary disclosure using 181 Australian companies. They reveal a positive relationship between board independence and voluntary disclosure in their 2SLS regression.

Studies on corporate governance and disclosure quality have also been undertaken in Asian settings such as Malaysia (e.g. Haniffa and Cooke, 2002; Ghazali and Weetman, 2006), Hong Kong (e.g. Chen and Jaggi, 2000; Ho ang Wong, 2001) and Singapore (e.g. Eng and Mak, 2003; Cheng and Courtney, 2006). In 2002, Haniffa and Cooke empirically examined the influence of culture and corporate governance on the extent of disclosure quality. Using annual reports from 1995, 167 listed firms in Malaysia were analysed. They find that non-executive chair members, proportion of family members on the board and the percentage of son of the soil directors are important in determining the extent of disclosure quality. Another piece of Malaysian research by Ghazali and Weetman (2006) investigates the association between disclosure quality and corporate governance. Based on 87 listed firms

[100] The Horwath Report 2002 released corporate governance rankings on corporate governance and related party disclosures in the year 2001 annual reports of the top 250 firms in Australia (Beekes and Brown, 2006, p. 428).

in Bursa Malaysia in the year 2001, they discovered that director ownership was the only variable that was found to be significant in explaining the extent of disclosure quality.

Chen and Jaggi (2000) document evidence that board of director independence is crucial in influencing the level of good quality reporting by Hong Kong firms based on data collected during 1993 and 1994. From the same country, Ho and Wong (2001) use a weighted disclosure index to measure the extent of disclosure quality from listed firms in Hong Kong. They reveal that the presence of an audit committee and the proportion of family members on the board are important factors in explaining the variation of disclosure quality practices.

In explaining the relationship between disclosure quality and corporate governance, Eng and Mak (2003) show that having a larger proportion of outside directors and a smaller percentage of managerial shareholders are each negatively related to voluntary disclosure. Conversely, the presence of a large government shareholding is positively related to the extent of voluntary disclosure. Eng and Mak's (2003) analysis is based on listed firms in Singapore in the year 1995. A more recent study by Cheng and Courtney (2006) provides contradictory results to Eng and Mak (2003). Specifically, Cheng and Courtney (2006) document a significant positive association between the proportion of independent directors and the extent of disclosure quality in 104 firms in the year 2000.

In determining the influence of good quality reporting and corporate governance, Barako et al. (2006) focus upon the Kenyan context and based their study on data from 1992 to 2001. Their findings reveal that audit committee presence, foreign ownership, institutional ownership, firm size and leverage positively influence the level of disclosure by Kenyan

firms. However, board composition and shareholder concentration are negatively related to the quality of disclosure. The Mexican study, by Hidalgo et al. (2011), reports that board size is the only governance variable that determines the extent of intellectual capital disclosure.

In spite of the extensive research on corporate governance and disclosure quality, none of the prior studies have tried to employ IRAWARD and FLSCORE as proxies for disclosure quality. In the absence of alternative disclosure quality measures and in light of the previously discussed recklessness in handling endogeneity (Hermalin and Weisbach, 1998), it is premature to jump to the conclusion that current corporate governance practices really help to improve disclosure quality. The employment of various alternative measures for disclosure quality may increase the robustness of the findings (e.g. Cooke, 1998, p. 209).

It can be observed that the findings of the above mentioned studies are mainly contradictory and inconsistent. For instance, even though Hong Kong and Singapore are known to share a similar background, worldview and culture, the results from Chen and Jaggi (2000), Ho and Wong (2001) and Eng and Mak (2003) lead to differing conclusions. Corporate governance literature acknowledges that the conflicting findings might be attributed to endogeneity such as omitted variables, simultaneity or measurement error (e.g. Renders and Gaeremynck, 2000; Börsch-Supan and Köke, 2002). Therefore, the present study will consider the potential endogenous link between disclosure quality and corporate governance using a simultaneous system of equation.

5.4 Literature review on simultaneity between disclosure quality and board independence

It is acknowledged that there are possible endogeneity biases in this study, given the abundance of corporate governance literature that highlights this issue (e.g. Brown et al., 2011; Armstrong et al, 2010; Brickley and Zimmerman, 2010; Lim et al., 2007). Although most prior studies completely ignore the potential for endogeneity when examining the relationship between corporate governance and disclosure quality (e.g. Patelli and Prencipe, 2007; Li et al., 2008; Haniffa and Cooke, 2002; Eng and Mak, 2003), exception should be given to a small number of studies including Lim et al. (2007). The present study acknowledges that the BODIND variable has a potentially endogenous nature. This is because (i) the "comply and explain approach", which is currently practiced in the UK, provides more space for managers to use their own discretion, especially when they are dealing with policy concerning independent directors, and (ii) reverse causality between the independence of directors (BODIND) and disclosure might exist since it is possible that a firm's high disclosure environment will attract more independent directors to join them. Moreover, based on their review of findings from the prior literature, Armstrong et al (2010, p. 191) conclude that outside directors function well in high disclosure environments, thus highlighting a reverse causality between a firm's disclosure and the presence of independent directors.

It is important to note that plenty of research in corporate governance highlights the endogenous nature of board independence from different perspectives (e.g. Cornett et al., 2009; Lehn et al, 2009; Adams et al., 2009; Hay et al, 2008; Brick et al., 2006; Adams and

Ferreira, 2007; Harris and Raviv, 2008; Boone et al., 2007)[101]. Following Lim et al. (2007) in their study on board composition and voluntary disclosure, we treated board independence (BODIND) as endogenous in our study.[102] The present study focuses on BODIND and disregards other governance variables because board independence (BODIND) is "identified as important in providing corporate governance", according to Chenhall and Moers (2007, p. 179).[103] Moreover, Boone et al. (2007) find that a steady increase in board size is influenced by an increase in the number of independent directors in a company.

5.5 Hypothesis development

As a matter of fact, there is no consensus on what really constitutes a sound corporate governance practice. It remains an unanswered myth (Brickley and Zimmerman (2010). Point number 3 in the preface section of the UK Corporate Governance Code acknowledges the limitation of the code itself, admitting that it is not always successful in mitigating managers' opportunistic behaviour, hence signalling that the effect of corporate governance on disclosure quality is vague. In particular:

> Nearly two decades of constructive usage have enhanced the prestige of the Code. Indeed, it seems that there is almost a belief that complying with the Code in itself constitutes good governance. **The Code, however, is of necessity limited to being a guide only in general terms to principles, structure and processes. It cannot guarantee effective board behaviour because the range of situations in which it is applicable is much too great for it to attempt to mandate behaviour more specifically than it does**. Boards therefore have a lot of room within the framework of the Code to decide for themselves how they should act (The UK Corporate Governance Code, 2010, p. 2; emphasis added).

[101] In examining the relationship between corporate governance and earnings management, Cornett et al. (2009) also treated board independence as endogenous (measured using interaction terms between board size and independent directors), while other board characteristics (e.g. board meeting, CEO tenure) and audit committee characteristics (e.g. audit committee size, audit committee meeting) are assumed to be endogenous.

[102] The study by Lim et al. (2007) focuses on the influence of board composition (board independence) on voluntary disclosure. They treat board composition as endogenous and they employ 2SLS regression. They find that board composition is related positively to voluntary disclosure.

[103] The present study admits that BODIND is not the only corporate governance variable that is subject to the endogeneity issue. Lehn et al. (2009) consider board size to be endogenous as well. This is considered as a part of the weaknesses in the current study.

Relying on the main components of governance, as highlighted in the UK Corporate Governance Code (2010) and in the empirical literature, the present study considers that variables relating to the board of directors, chairman and audit committee are of particular interest to the investigation. The present study, although not perfect, acknowledges that issues of measurement in corporate governance research are not uncommon. Moreover, the quality of a board of directors is perceived as an essential element in internal governance, as it is mainly responsible for monitoring and disseminating a higher quality of information (e.g. Kent and Steward, 2008; Nelson et al., 2010; Vafeas, 2005; Fama and Jensen, 1983) and for improving the effectiveness of corporate governance (e.g. Cohen et al., 2004). Boards of directors delegate the power to monitor financial and transparency matters to audit committees, who are responsible to maintain the credibility of financial information and disclosure. Hence, audit committees play significant roles in governing the "process" of firms' financial reporting (Engel et al., 2010, p. 136; Archambeault et al., 2008; Bédard et al., 2004).

5.5.1 Audit committee quality (ACQUALITY and ACQUALITYBR)

Research evidence suggests that audit committees can have a direct influence on the scope of external audits and the monitoring of financial reporting (Beasley et al., 2009; Cohen et al., 2004; Klein, 2002) and that they play important roles in overseeing a firm's financial reporting process (Engel et al., 2010; Klein, 2002; Archambeault et al., 2008; Bédard et al., 2004). In order to carry out their duty effectively, audit committees need to be equipped with several relevant criteria,[104] which are defined in various ways in the prior literature. Bronson et al. (2009) demonstrate that an audit committee will only function effectively if

[104]It is acknowledged that the ideal criteria for audit committee effectiveness are obscure.

all of its members are comprised of independent directors. Dhaliwal et al. (2010) argue that the effectiveness of audit committee with accounting expertise is dependence on their independence, share ownership, multiple directorship and tenure. Other studies concentrate on important audit committee criteria such as independence, diligent financial expertise and size (Zaman et al., 2011; Kent et al., 2010; Rainsbury et al., 2008; Nelson et al., 2010; Bédard et al., 2004), background and the level of experience of the audit committee chairperson (Engel et al., 2010), or on broader aspects of effectiveness such as audit committee knowledge and expertise in their industry (Cohen et al., 2008). From the analysis of prior literature, Bédard and Gendron (2010) summarise that there is a relative lack of supporting evidence for the influence of audit committee size and audit committee meeting frequency on financial reporting quality, as compared to other characteristics such as the independence, the competency and the formation of the audit committee in a company.

Due to the presence of several options of proxies for audit committee quality provided by previous literature, the measures used by Zaman et al. (2011) are favoured for the purposes of the current research. These measures are based on the regulatory recommendations in the UK and are in accordance with the expressions of agency theory.[105] Following Zaman et al., the composite measures for audit committee quality (ACQUALITY and ACQUALITYBR) is constructed, in accordance with the Smith Report (2003) and the Blue Ribbon Recommendation (1999). Specifically, four characteristics will be examined including audit committee independence, diligence, size and expertise. With respect to these characteristics, the Smith Report (2003) states that audit committees must be comprised entirely of independent directors, should meet at least three times a year, must include at

[105] It is important to note that the Zaman et al. (2011) study is different from the current study, given that they focus on the association between corporate governance variables and audit fees and non-audit services.

least one member with relevant financial expertise and have minimum of three members. In order to construct the composite measure of audit committee quality (ACQUALITY), firms are assigned a score of "1" if they fulfil all the criteria mentioned above and "0" if otherwise. Concerning the audit committee measure of ACQUALITYBR, it is qualitatively similar to ACQUALITY except that the number of meetings should be conducted at least four times in a year, in accordance to the Blue Ribbon Recommendation (1999) in the US. The present study expects ACQUALITY and ACQUALITYBR to be associated with higher disclosure quality. Thus, the hypotheses are:

H2a: Ceteris paribus, there is a positive relationship between audit committee quality (ACQUALITY) and disclosure quality.

H2b: Ceteris paribus, there is a positive relationship between audit committee quality (ACQUALITYBR) and disclosure quality.

5.5.2 Audit committee independence (ACIND) and board independence (BODIND)

According to Fama and Jensen (1983), the board of directors is the main force for monitoring and control over firms, due to the power they have in determining a firm's decisions. In order for the board to perform their monitoring effectively, prior literature (e.g. Bhagat and Black, 2002; Borokhovich et al., 2006; Aggarwal and Williamson, 2006; Hermalin and Weisbach, 1998; Byrd and Hickman, 1992) and regulators (e.g. the UK Corporate Governance Code, 2010; Sarbanes Oxley Act) recognise the need for independent directors on boards as watchdogs to ensure that board decisions are always aligned with shareholder's interests and to control opportunistic behaviour by managers. Fama and Jensen (1983) highlight that independent directors have a greater capability for making independent judgements on board decisions, compared to non-independent directors. From

the regulatory viewpoint, the independent director's role has received significant attention. The UK Corporate Governance Code (2010) stipulates that 50% of the board must be comprised of independent directors (excluding the chairman) while all audit committees must be composed of independent directors.

Within agency theory, independent directors are considerably more credible than non-independent directors when it comes to monitoring firms. Because they are an external officer (Donnelly and Mulcahy, 2008), they are viewed as a check and balance in a firm's governance system (Haniffa and Cooke, 2002); they function as supervising mediators in reducing the conflict of interest within firms (Bathala and Rao, 1995, p. 59; Fama, 1980, p. 293); they are supposed to behave like "professional referees", as their decisions are without external compulsion from the non-independent directors (Bathala and Rao, 1995, p. 60); they are more likely to act on behalf of shareholders (Felo et al., 2003); they increase a board's integrity and effectiveness by dampening conflicts of interest among the managers (Fama, 1980); they consist of a group of "professional managers with expertise in decision control and they are expected to be more trustworthy in handling sensitive governance issues such as director's remuneration or the appointment of new managers (Lim et al., 2007, p. 558); they improve disclosure transparency (Haniffa and Cooke, 2002) and they reduce the information asymmetry between the firms and stakeholders by promoting high standards of disclosure quality (Eng and Mak, 2003, p. 327). Lower conflict of interest in the board (where the goal of the shareholders and managers is identical) will prevent managers from disseminating low quality information to the investors (Kanagaretnam et al., 2007).

According to Dhaliwal et al. (2010, p. 793), independent directors (with accounting literacy) on audit committees "may have lower economic incentives to collude with top managers and are more likely to objectively monitor management performance". While dependent directors are more specialised in the "overall strategic guidance" of the firms, the non-independent directors are a group of professionals with a vast and diverse experience. They are mainly responsible to "monitor the board's activities and financial reporting quality" (Brown et al., 2011, p. 112).

However, some studies question the capability of independent directors to improve the effectiveness of a firm's governance and quality of disclosure. It is suggested that independent directors might impair the board if it is largely comprised of independent directors who may have previously worked in firms with dissimilar industry specialisations (Bathala and Rao, 1995). Moreover, Agrawal and Knoeber (1996, p. 394) maintain that the appointment of external directors might be influenced by "political reasons, perhaps to include politicians, environmental activists, or consumer representatives." This could be seen to compromise the independent characteristics of external directors.

Previous research has illustrated that the relationship between voluntary disclosure and independent directors is mixed. Some studies demonstrate a positive association between independent boards and disclosure quality (e.g. Song and Windram, 2000; Chen and Jaggi, 2000). Donnelly and Mulcahy (2008) report a significant positive link between the percentage of independent directors and the voluntary disclosure score in Ireland. Beasley et al. (1996) reveal that financial statement fraud decreases with a higher proportion of independent directors on the board. Cornett et al. (2008) also find that the quality of a

firm's earnings improves in the presence of outside directors. Dhaliwal et al. (2010) report a positive association between the presence of an independent audit committee with financial expertise and accrual quality. From the US viewpoint, Baek et al. (2009) find a positive link between the proportion of independent directors and disclosure related to management activities. Using a sample from Malaysia and Singapore, Bradbury et al. (2004) find that earnings quality is better when audit committees are comprised of independent directors. Moreover, Klien (2002) discovers a positive relationship between a high quality of reporting and audit committee and board independence. From the UK perspective, Li et al. (2008) find a positive link between the proportion of independent directors and intellectual capital disclosure.

Contrastingly, Eng and Mak's (2003) Singaporean study documents a negative relationship between the proportion of independent directors and the extent of voluntary disclosure. Additionally, Agrawal and Knoeber (1996) demonstrate that a firm's performance decreases with the number of outside directors. Few pieces of research, however, have established that the link between independent directors and voluntary disclosure is insignificant (e.g. Ho and Wong, 2001; Haniffa and Cooke, 2002). With regard to audit committee independence, Felo et al. (2003) find that the percentage of independent audit committee members was insignificant in influencing disclosure quality.

The previous paragraph might question the potential positive effect of independent directors (whether on the board or audit committee) in relation to disclosure quality. Nonetheless, the studies mentioned suffer from a few drawbacks. For example, Eng and Mak (2003) fail to control for board size, audit committee size and audit committee

independence when examining the relationship between board independence and voluntary disclosure (Eng and Mak, 2003). Having a large board could possibly increase the problem of free riders, which may weaken a board's independence. More importantly, there is poor consideration of the reverse causality issue in the prior literature (e.g. Haniffa and Cooke, 2002; Eng and Mak, 2003) and a lack of use of lagged variables in the models to cater for simultaneity bias. Hence, based on agency theory, which views independent directors as one of the agents for monitoring and improving disclosure quality, the present study hypothesises that:

H2c: Ceteris paribus, there is a positive relationship between board independence (BODIND) and disclosure quality.

H2d: Ceteris paribus, there is a positive relationship between audit committees independence (ACIND) and disclosure quality.

5.5.3 Audit committee meeting (ACMEET) and board meeting (BODMEET)

Having a high number of independent directors with vast knowledge and expertise on the board and audit committee is of no use, to firms, if they only meet very infrequently. Board meetings and audit committee meetings are seen as a platform for directors to exercise their expertise and to discharge their duties in terms of solving company issues, including that of disclosure transparency. "Boards of directors need to be active to meet their corporate governance commitments, particularly in ensuring high-quality, transparent reporting in annual reports" (Kent and Stewart, 2008, p. 653). Moreover, the effort that a board gives to performing their responsibilities can be measured based on how frequently they meet (Ronen and Yaari, p. 25).

In the light of the above discussion, prior research that fails to control for audit committee meeting and/or board meeting frequencies (e.g. Eng and Mak, 2003; Baek et al., 2009) may suffer from model misspecification. Moreover, the frequency of board and audit committee meetings has been found to be associated with high disclosure quality in prior studies. Karamanou and Vafeas (2005) find that firms with active board and audit committees tend to update their earnings forecasts more frequently and accurately than their counterparts. Menon and William (1994) state that board and audit committee meetings are crucial as a monitoring mechanism in a company's financial affairs. Similarly, Collier and Gregory (1999) imply that the number of meetings and their length is indicative of the vigour and dedication of the audit committee in monitoring a company's financial reporting. Furthermore, Hoitash et al. (2009, p. 844) point out that the level of audit committee "diligence" can be captured using the number of audit committee meetings in a year.

On the other hand, Chen et al. (2006) find a positive relationship between the number of board meetings and the incidence of fraud in China. They argue that the positive link might be influenced by the board's attempts to solve the fraud case. Bédard and Gendron's (2010) review of findings from prior literature concludes that there is a lack of supporting evidence for the association between the frequency of audit committee meetings and financial reporting quality. Given that a higher frequency of meetings will be expected to increase an audit committee's effectiveness in checking financial reports, thus increasing the quality of disclosure, this study predicts that:

H2e: Ceteris paribus, there is a positive relationship between audit committee meetings (ACMEET) and disclosure quality

H2f: Ceteris paribus, there is a positive relationship between board meetings (BODMEET) and disclosure quality.

5.5.4 Audit committee size (ACSIZE) and board size (BODSIZE)

In relation to the number of board members, paragraph B.1 of The UK Corporate Governance Code (2010, p.12) states that the board "should not be so large as to be unwieldy". This implies that regulators acknowledge the disadvantages of having a large number of board members. With regard to this, prior studies offer two competing views. On one hand, a large board is favourable, given that it may offer greater expertise, effort, knowledge and manpower; hence, it is expected to improve the extent of a firm's disclosure quality. According to Lehn et al. (2009, p. 749), large board size represents "greater collective information that the board possesses about factors affecting the value of firms such as product markets, technology, regulation, mergers and acquisitions, and so forth". On the other hand, a small board is favourable as there are less likely to be free riders (Yermack, 1999; Lehn et al., 2009); it provides more monitoring (Dey, 2008); there is less of a coordination problem (Lehn et al., 2009; Lipton and Lorsch, 1992) and members are more focused on their duties (Karamanou and Vafeas, 2005). With these competing views, it is predicted that board and audit committee size may have both positive and negative impacts on disclosure quality.

In the UK setting, Li et al. (2008) record a significant positive link between audit committee size and intellectual disclosure. A positive relationship between audit committee size and the quality of financial reporting is also documented by most prior studies (e.g. Felo et. al, 2003; Lin et al., 2006; Song and Windram, 2004; O'Sullivan et al., 2008). Nevertheless, using

262 UK listed companies, Magena and Pike (2005) fail to find any relationship between audit committee size and interim disclosure. However, based on an extensive review of audit committee studies, Bédard and Gendron (2010) conclude that there is a lack of evidence for the association between audit committee meeting frequencies and financial reporting quality. Hence, the present study hypothesises that:

H2g: Ceteris paribus, there is a positive or negative relationship between audit committee size (ACSIZE) and disclosure quality.

H2h: Ceteris paribus, there is a positive or negative relationship between board size (BODSIZE) and disclosure quality.

5.5.5 Audit committee expertise (ACEXP)

Prior studies recognise that corporate governance is one of the potential forces for reducing managers' opportunistic behaviour (e.g., Abbott et al., 2002; Efendi et al., 2004; Carcello et al., 2006; Xie et al., 2003; Beasley, 1996; and Klein, 2000). The expertise of the audit committee can function as a mechanism to detect and mitigate any irregularities and financial misstatements in financial reporting (Kent et al., 2010; Abbott et al., 2004; Beasley, et al., 2009; Cohen et al, 2004; Klein, 2002). Audit committees are formed by the board of directors. They have a specialised capability for ensuring financial reporting quality (Brown et al., 2011) and they are equipped with financial expertise to ensure their effectiveness (Bédard and Gendron, 2010; Dhaliwal et al., 2010). Within agency theory, an audit committee is viewed as one of the monitoring agents within a company that is instrumental in improving the quality of financial reporting (Piot, 2004; Vafeas, 2005) and useful in reducing agency cost (Archambeault et al., 2008). The importance of an audit committee's financial expertise is also supported by regulators in Paragraph C.3.1 of The UK Corporate

Governance Code (2010), which stipulates that "at least one member of audit committee members has recent and relevant financial experience".

Several studies report a positive relationship between an audit committee's expertise and disclosure quality (e.g. Song and Windram, 2000; Felo et al., 2003; Qin, 2007; Krishnan and Visvanathan, 2006; Zhang et al., 2007). Dhaliwal et al. (2010) report that an audit committee's expertise increases their effectiveness in improving accrual quality. Moreover, Xie et al. (2003) demonstrate that an audit committee's financial literacy is inversely related to earnings management, while Abbott et al. (2002) find a negative relationship between an audit committee's financial expertise and the occurrence of accounting restatements. Using AIMR Ratings as a proxy for disclosure quality, Felo et al. (2003) document that the percentage of audit committee members with financial or accounting literacy and audit committee size are important elements in influencing the quality of disclosure. Thus, the present study hypothesises that:

H2i: Ceteris paribus, there is a positive relationship between audit committee financial literacy (ACEXP) and disclosure quality

5.5.6 Audit committee multiple directorship (ACMULT) and chairman multiple directorship (CHAIRMULT)

Multiple directorships by audit committee members and chairmen have the potential to contribute a positive effect on disclosure quality, but they might also carry a negative implication for the quality of a firm's disclosure. Some previous literature suggests that multiple directorship is favourable in the sense that it equips the directors with multiple skills, expertise and knowledge that could be beneficial to the company (Haniffa and Hudaib,

2006; Ferris et al., 2008; Dhaliwal et al., 2010); it increases a director's competency in "networking" and consultancy, which is developed through handling multiple directorships in various companies (Voordeckers et al., 2008, p. 5; Ronen and Yaari, 2008, p. 256). According to Dhaliwal et al. (2010, p. 794), audit committees (with accounting expertise) and "multiple directorships may be more vigilant monitors if they are concerned about their reputational losses". In favour of chairman directorship, Haniffa and Cooke (2002, p. 323) point out that;

> [W]hen a chairperson has cross-directorships, insight can be offered on disclosure of information based on experiences derived from personal knowledge of other companies. Furthermore, being the chairperson of the board enables influence to be exerted on certain issues, including disclosure of information in annual reports (p.323).

Contrastingly, agency theory views multiple directorships as unfavourable (Zheng, 2008), given that it increases the burden of a director's responsibilities and, thereby, impairs their monitoring function (Ahn et al., 2009; Fich and Shivdasani, 2006; Ferris et al., 2003; Song and Windram, 2000).

Furthermore, audit committee members are expected to devote significant amounts of "time and effort" to attending audit committee meetings. They are unlikely to be effective if they are holding multiple directorships (Dhaliwal et al., 2010, p. 795). Moreover, multiple directorships also create incentives for interlocking relationships which might compromise board independence (Haniffa and Cooke, 2002).

Prior literature offers a mixed view with regard to the predictive ability of multiple directorships for improving a firm's disclosure. In their seminal work in the Belgian capital market, Voordeckers et al. (2008) document the positive link between multiple directorships

and a firm's performance. Another seminal work by Fich and Shivdasani (2006) demonstrates that a director's involvement in handling multiple firms leads to poor corporate governance; while Beasley (1996) reveals that high multiple directorships are associated with high levels of financial fraud. Dhaliwal et al. (2010) report a negative association between expert audit committees with multiple directorships and accruals quality. Haniffa and Cooke's (2002) study find that multiple directorships for both directors and chairmen are insignificant in influencing voluntary disclosure in Malaysia. Therefore, due to these competing views, the present study expects that audit committee multiple directorship and chairman multiple directorship can have a positive or a negative relationship to disclosure quality. Thus, the next hypotheses are as follows:

H2j: Ceteris paribus, there is a positive or negative relationship between audit committee multiple directorships (ACMULT) and disclosure quality.

H2k: Ceteris paribus, there is a positive or negative relationship between chairman multiple directorships (CHAIRMULT) and disclosure quality.

5.5.7 Non-executive chairman (CHAIRNONEXE)

The variable of non-executive chairman (CHAIRNONEXE) is of interest, given that it has received considerable attention from regulators and prior literature in respect to reducing agency costs. From the regulatory point of view, having a non-executive chairman is more favourable than having an executive chairman. The UK Corporate Governance Code (2010), Paragraph A.3.1, stipulates that the chairman must be an independent director on the date of appointment. Within agency theory, the presence of a non-executive chairman might be viewed as more credible, especially when handling important matters such as "monitoring, disciplining and compensating senior managers" (Barako et al., 2006, p. 111). Non executive

chairmen are supposed to be more influential in enhancing the quality of a firm's disclosure (Haniffa and Cooke, 2002, p. 339).[106] Non-executive chairmen play an important role on boards by "ensuring the board activities are carried out with due diligence and information is provided to directors on a timely basis" (Brown et al., 2011, p. 113). In order to perform such roles, "the Higgs Report (Higgs, 2003) and the Combined Code on Corporate Governance (2003) recommend that the chairman is an independent nonexecutive director in order to minimise the possible abuse of CEO power" (Donnelly and Mulcahy, 2008, p. 419).

Given that non-executive chairmen are responsible for working closely with shareholders during shareholder's meetings and listening to their opinions, and that they hold power during board meetings that discuss matters related to a firm's disclosure policy as stated in the UK Corporate Governance Code (2010), it is expected that the presence of a non-executive chairman increases the quality of a firm's disclosure.

Prior literature offers mixed results with regard to the association between non-executive chairmen and disclosure quality. Donnelly and Mulcahy (2008) report that having a non-executive chairman increases voluntary disclosure in Ireland, while Haniffa and Cooke (2002) find a negative relationship between having a non-executive chairman and disclosure quality in the Malaysian context. Haniffa and Cooke (2002) further suggest that a non-executive chairman's independence might be affected if they are "making a private gain"

[106] Haniffa and Cooke (2002) rely on the argument for CEO/chairman duality when constructing their hypothesis for the non-executive chairman varable (p. 321). It is worth noting that, although non-executive chairman and CEO duality measure different aspects, they share the same construct to certain extent. A similar situation can also be observed in Donelly and Mulcahy (2008) which completely relies on the CEO Duality argument when developing a hypothesis for the chairman non-executive variable.

over the undisclosed information (p. 343). Based on the assumption in agency theory, this study hypothesises that:

> *H2m: Ceteris paribus, there is a positive relationship between non-executive chairman (CHAIRNONEXE) and disclosure quality.*

5.5.8 Chairman tenure (CHAIRTEN)

The role of chairman is viewed as vital in a firm's governance system, given that it has received significant attention from the regulator. Several parts of the UK Corporate Governance Code (2010) highlight the responsibilities and provide guidelines for chairmen in carrying out their duties. In particular, Paragraph A.3 in the Main Principal part (The UK Corporate Governance Code, 2010, p. 10) states that "the chairman is responsible for leadership of the board and ensuring its effectiveness on all aspects of its role", while in the Supporting Principle part, it mentions that:

> The chairman is responsible for setting the board's agenda and ensuring that adequate time is available for discussion of all agenda items, in particular strategic issues. The chairman should also promote a culture of openness and debate by facilitating the effective contribution of nonexecutive directors in particular and ensuring constructive relations between executive and non-executive directors. The chairman is responsible for ensuring that the directors receive accurate, timely and clear information. The chairman should ensure effective communication with shareholders." (The UK Corporate Governance Code, 2010, p. 10).

In relation to a firm's disclosure policy, Paragraph B.5 (p. 16) of the UK Corporate Governance Code (2010) states that:

> The **chairman is responsible for ensuring that the directors receive accurate, timely and clear information.** Management has an obligation to provide such information but directors should seek clarification or amplification where necessary (emphasis added).

> **Under the direction of the chairman**, the company secretary's responsibilities include ensuring good information flows within the board and its committees and between senior management and nonexecutive directors, as well as facilitating induction and assisting with professional development as required. The company secretary should be responsible for advising the board **through the chairman** on all governance matters (emphasis added).

This implies that the role of the chairman is not only crucial to ensuring the effectiveness of the board meeting but also to ensuring that all directors receive relevant and sufficient information, adequate time and a platform to contribute ideas and knowledge during the exercising of their power. Correspondingly, chairman need to be equipped with expertise and experience that is relevant to the carrying out of their duties.

According to prior literature, long chairman tenure can have both a positive and a negative impact. On the one hand, long tenure by chairman potentially increases their expertise, knowledge and experience, which subsequently improves the extent of a firm's disclosure. According to Dhaliwal et al. (2010, p. 795), "if effective monitoring is an internally acquired skill, then accounting experts with greater tenure (length of service) are likely to offer more effective monitoring of financial reporting relative to those with lower tenure". Ronen and Yaari (2008) point out that "tenure allows directors more familiarity with the firm's normal business and resources, which facilitates their monitoring" (p. 258). Since an independent chairman is a representative of shareholders (Galbraith, 2009, p. 66), the chairman should be proactive in board meetings to encourage more response and opinion from the directors (Kakabadse and Kakabadse, 2007), thus promoting higher quality in a firm's disclosure policy. Chen et al. (2006) point out that if a chairman is only recently appointed to the board, he/she might not be very familiar with the firm's operations and his/her ability to prevent fraud is, therefore, impaired.

On the other hand, prior studies suggest that chairman independence might be compromised the position is held for a long period. Kakabadse and Kakabadse (2007) find

that longer tenures improve the friendship between chairman and insider directors, enabling them to understand and respect each other and to work together in harmony for the success of the firm. This is in line with Beasley (1996) who maintains that longer outside director's tenures build stronger managerial relationships. Taken together, a long and close relationship between a chairman and insider management might gradually impair chairman independence. This argument is echoed by Niskanen (2005) who believes that long director tenure in Enron is one of the factors that contributed to the firm's failures. In a related vein, Schwenk (1993) conclude that long top management tenure is associated with lower firm performance as managers become less transparent about a firm's "strengths and weaknesses" (p. 455). Goodwin et al. (2009) reveal that forecast error increases with the length of CEO tenure and they suggest that CEOs with longer tenures will be less careful in monitoring the accounting data. In addition, Chen et al. (2006, p. 432) argue that chairmen might become "over-confident" when they are dealing with fraud cases, due to long years of service in the company.[107]

Using a multinational sample from the US, UK and Australia, Kakabadse and Kakabadse (2007) find that chairman tenure is positively related to firm performance. Moreover, Chen et al. (2006) find a negative relationship between the duration of chairman tenure and the number of fraud cases. The negative relationship between the duration of outside director's tenure and financial statement fraud has also been documented by Beasley (1996) in his US study. Due to the mixed views on chairman tenure, the current study predicts that the relationship can either be positive or negative. As such, the next hypothesis is:

[107] Future research should consider the potential effects of non-linearity between chairman tenure and disclosure quality.

H2l: Ceteris paribus, there is a positive or negative relationship between chairman tenure (CHAIRTEN) and disclosure quality.

5.5.9 Blockholders (SUBSHR) and number of blockholders (NOSUBSHR)

As set out in the Disclosure Transparency Rules (DTR) 5.8.4 (Procedures for the notification and disclosure of major shareholdings), it is stated that firms should disclose the parties with 3% or more of a firm's voting rights. Prior literature documents that blockholders can contribute both positively and negatively to disclosure quality. On the one hand, the presence of blockholders creates incentives to control and monitor managers' opportunistic behaviour as well as to encourage and demand better disclosure. The power that blockholders have to demand better transparency is promising. In particular, they have the power to determine who will be elected onto the board (Ronen and Yaari, 2008); they have better access to a firm's private information (Heflin and Shaw, 2000); they are effective in monitoring managers' opportunistic behaviour (Shleifer and Vishny, 1997); they have the authority to replace managers that do not perform well according to the expectations of the larger shareholders (Andres, 2008, p. 432) and they increase a firm's value (Seifert et al., 2005). Moreover, "large investors have incentives to monitor the manager and, if necessary, intervene to correct value-destructive actions" (Edmans and Manso, 2011) and "shape the nature of corporate risk-taking activity" (Wright et al., 1996, p. 442). According to Farooque et al. (2010, p. 175), large shareholders can resolve moral hazard and free-rider problems, having outright control over firms and their management. They can internalise both the costs and benefits of monitoring. They have economic incentives and enough voting power to monitor effectively and to put pressure on, or even to oust, management through a proxy fight or a takeover.

Using 21 countries in Asia and Europe as sample, Attig et al. (2008) document that monitoring by substantial shareholders results in lower costs of capital and information asymmetry. Prior research has also proven that high concentrations of ownership increase a firm's quality of earnings (e.g. Chung et al., 2005; Velury and Jenkins, 2006; Koh, 2003; Rajgopal et al., 1999).

On the other hand, blockholders also have an incentive to exploit company resources via private benefits of control and risk aversion. Excessive monitoring by blockholders also has the potential to increase the agency cost. Boubaker and Labégorre (2008, p. 963) suggest that large shareholders will use their power and influence to shape and manipulate timing and disclosure patterns in order to protect "their private benefits extraction activities" from the outsider. Hence, the quality of information offered by these companies is basically low. Moreover, Wright et al. (1996), find that, in the presence of growth investment opportunities, insider blockholders with high ownership tend to be more risk averse than their counterparts. With these competing views, it is unclear how disclosure quality is influenced by blockholders.

In addition, the extent of a blockholder's monitoring effect is dependent on whether they are an insider or outsider in relation to a firm. Within agency theory, high managerial ownership is expected to reduce the misalignment of interest between agent and principal (Jensen and Meckling, 1976; Wright et al., 1996). Managers with significant shareholdings are expected to improve disclosure quality, given that they are in a position of better access to internal information and that they are presumed to act on behalf of the shareholders.

Alternatively, although inside managers hold large ownership in firms, they may also have incentives to make decisions that advance their career or result in other personal benefits (Wright et al., 1996).[108] With regard to external blockholders, as previously discussed, their presence is expected to be beneficial in terms of monitoring managers' behaviour (Edmans and Manso, 2011), but incentives to exploit company resources may also be present (Boubaker and Labégorre, 2008).

Khurshed et al. (2011) find that institutional blockholders and director's ownership are substitutive to each other. Heflin and Shaw's (2000) US study, however, documents that both internal and external blockholders are effective in reducing information asymmetry and market liquidity in a firm, thus suggesting that blockholders, regardless of type, have the effect of improving disclosure quality.[109] The present study relies on Heflin and Shaw's (2000) findings and considers that both inside and outside blockholders are potentially influential in enhancing the extent of disclosure quality. [110]

Empirical findings reveal mixed results. Goodwin et al. (2009) document a negative association between external blockholders and forecast error. Eng and Mak (2003) report that blockholder ownership is statistically insignificant in influencing voluntary disclosure.

[108] Wright et al. (1996, p. 443) discuss that "when corporate insiders lack appropriate incentives, they may reduce corporate risk taking in order to lower the personal costs of such decisions. Included among these costs would be the potential loss of employment, the extra effort required to master new technologies or manage new ventures and the anxieties inherent in higher-risk corporate undertakings".

[109] The present study realizes that Tribo et al. (2007) report mixed results on the relationship between blockholder types and R&D investment. In their study, blockholders are categorised into financial companies, non-financial companies and individuals. Other studies that concentrate on institutional shareholders include Wright et al. (1996), Wahal and McConnell (2000) and Chung et al. (2003). Due to the limited timeframe and lack of proper data, the present study intends to focus on the blockholders ownership and the number of blockholders *per se*, while acknowledging that the impact of other shareholder types on disclosure quality is a very interesting topic for future research.

[110] The present study believes that future research should consider the potential effect of both inside and outside blockholders.

However, Heflin and Shaw (2000) demonstrate that blockholders, in general, are effective in reducing information asymmetry.

Beside the percentages of blockholder's ownership, the number of blockholders in a firm also has important implications for effective monitoring. From the point of view of classical theory, it is assumed that single large blockholders function better than multiple blockholders in monitoring and controlling managers' opportunistic behaviour (Edmans and Manso, 2011, p. 2). Edmans and Manso (2011, p. 2) also claim that "a large number of small blockholders invites a free-rider problem and each of them are not able to bear high cost of monitoring by their own". In support of this view, Tribo et al. (2007) find an inverse relationship between the number of blockholders and research and development (R&D) investment, hence suggesting that lower numbers of block holders are more likely to take risks in R&D investment.

Multiple blockholders could also exercise better monitoring. Prior literature reveals that having multiple blockholders increases a firms performance (Gallagher et al., 2010), improves liquidity (Bharath et al., 2010) and increases blockholder effectiveness by competing on trading (Edmans and Manso, 2011). Correspondingly, they claim that "multiple blockholders therefore serve as a commitment device to reward or punish the manager ex post for his actions" (Edmans and Manso, 2011, p. 2). This suggests that cooperation among blockholders leads to more effective in monitoring of managers' behaviour.

The present study argues that blockholders ownership alone might not be a good monitoring mechanism, because high blockholder ownership will be seen as less credible as a monitoring tool when the ownership is circulated among few hands. Similarly, the exploitation of a firm's resources could be more pronounced when it is conducted by one large blockholder. Blockholder ownership and the number of blockholders are expected to go hand in hand in hand, influencing disclosure quality in a complimentary way. Thus, the next hypotheses are:

H2n: Ceteris paribus, there is a positive or negative relationship between blockholders ownership (SUBSHR) and the extent of disclosure quality.

H2o: Ceteris paribus, there is a positive or negative relationship between number of blockholders (NOSUBSHR) and the extent of disclosure quality.

5.5.10 Simultaneity between disclosure quality and board independence

With regard to the association between board independence and disclosure quality, the majority of prior literature hypothesises that a higher percentage of independent directors is associated with better disclosure (e.g. Kent and Stewart, 2008; Nelson et al., 2010). Nonetheless, this assumption does not work in all circumstances. Reverse causality might occur when independent directors are attracted to join firms with sound disclosure quality because it implies that those firms are strong, healthy and less problematic. Moreover, Armstrong et al. (2010) point out that outside directors are able to provide better monitoring in a high disclosure environment where they can perform their duty equipped with relevant and timely information. They also argue that independent directors (i.e., outsiders with less informational advantage) are not able to work effectively in firms with low quality of information. Thus, causality can either run from independent directors to

disclosure quality or from disclosure quality to independent directors. In the light of above discussion, the present study hypothesises that:

H2p: There is an interaction relationship between board independent (BODIND) and disclosure quality.

5.6 Research methodology

5.6.1 Sample, year and measurement for disclosure quality

Information related to the sample selection process, years of observation and measurement for disclosure quality is similar to that explained in Chapter Three (refer to the Research methodology section). For the sake of brevity, the same discussion will not be presented here.

5.6.2 Corporate governance measurements

5.6.2.1 AUDIT COMMITTEE CHARACTERISTICS

Audit committee effectiveness, namely ACQUALITY and ACQUALITYBR are composite measures based upon specific regulatory recommendations. ACQUALITY was coded as "1" if all the following criteria are met: (i) the audit committee is comprised of at least 3 members (ii); the committee meets at least 3 times a year (iii); the committee is entirely comprised of independent directors and (iv) the committee includes at least 1 member with financial expertise. A code of "0" was allocated if otherwise. This is in accordance with the Smith Report (2003) recommendations. ACQUALITYBR shares similar criteria as ACQUALITY except that the number of audit committee meetings must be at least 4 times a year, following the US Blue Ribbon Recommendation (1999). These measures have been used by prior studies, including Zaman et al. (2011).

The audit committee multiple directorship variable was calculated by dividing the total directorship by all audit committee members with the number of audit committee members in a firm, following Razman and Iskandar (2002). This information was obtained by manually reading the directors profiles in the annual report. With regard to other audit committee characteristics, such as audit committee size, audit committee meeting frequency, audit committee independence and audit committee expertise, the measurements were consistent with the data used in Project One (refer to Chapter Three).

5.6.2.2 BOARD CHARACTERISTICS

Board related variables such as board independence, board meeting frequency and board size were measured in a similar way to the data used in the first project (refer to Chapter Three).

5.6.2.3 CHAIRMAN CHARACTERISTICS

In accordance with the recommendations in the UK Corporate Governance Code (2010), the dichotomous method was employed to code whether the Chairman is an executive (0) or non-executive (1) at the date of appointment as chairman. [111] Following Chen et al., (2006), chairman tenure was calculated based on the number of years the chairman had held that position in a given company. The chairman data for multiple directorships was based on the

[111] Chairman and audit committee multiple directorships are of interest in the current study for the following reasons: (a) the chairman is viewed as a key role in corporate governance by the UK Corporate Governance Code (2010); (b) the audit committee is one of the main committees in a firm that are entrusted with handling issues related to financial and disclosure transparency; (c) chairmen (on the date of appointment) and audit committees are supposed to be comprised of independent non-executive directors, as suggested by the UK Corporate Governance Code (2010). Hence, it is wise to focus on multiple directorships of independent directors rather than non-independent directors. Non-independent directors are subject to certain limitations of directorship in Paragraph B.3.3, which states that executive directors are restricted to have no more than one directorship in other FTSE100 companies.

number of directorships held by each chairman in other companies. All the chairman related data was collected from the chairman's profiles in the annual report.

5.6.2.4 BLOCKHOLDERS

In the UK, it is compulsory for the firms to disclose the percentage of ownership held by significant blockholders (3% and above) in the annual report. Large blockholders are presumed to be able to monitor and correct managers' opportunistic behaviour (Edmans and Manso, 2011). In addition, the number of blockholders is important in the monitoring of firms, given that higher numbers of blockholders might be able to carry out monitoring roles more effectively than their counterparts. Following Marston (2008), the total percentage of shareholders ownership with 3% and more shareholdings (NOSUBSHR) has been used as a proxy for significant shareholdings. As well as using the 3% and above criterion for determining large shareholders, as in the studies by Renneboog (2000) and Thomsen et al. (2006), the present study also used the percentage of substantial shareholders ownership with 5% and more shareholdings (5%SUBSHR). The 5%SUBSHR was employed in the sensitivity analysis section.

5.6.3 Control variables

In determining the relationship between corporate governance and disclosure quality, several control variables were used: the firm size, leverage, profitability, growth, audit quality, analyst following and firm-level risk, as well as year and industry dummies. Prior studies confirm that the level of disclosure quality is highly associated with the firm's characteristics (e.g. Hossein et al, 1995; Bushee and Noe, 2000; Lang and Lundholm, 1993;

McNally et al., 1982; Wallace et al., 1999; Inchausti, 1997; Cooke, 1989; Raffournier, 1995; Cooke, 1992).

5.6.3.1 FIRM SIZE (MCAP)

Firm specific characteristics, like firm size, have the potential to increase managers' incentives to provide a high quality of disclosure. Through the lens of agency theory, Watson et al. (2002, p. 297) extend Buzby's (1975) argument that high public scrutiny motivates large firms to reveal higher quality information, which subsequently reduces agency cost. Large firms have a greater tendency to provide better disclosure transparency than small firms because they have more cash and resources (Buzby, 1975), they are in need of more external capital to attract potential investors (Donnelly and Mulcahy, 2008, p. 420; Choi, 1973), they are subject more rigorous public and regulatory scrutiny (Camfferman and Cooke, 2002; Wallace and Naser, 1995; McNally et al., 1982) and they are supposed to collect more information for internal use. Hence, there is a reduced the cost for large firms to provide a higher quality of public disclosure (Raffournier, 1995). In addition, due to the greater number and diversity of a large firm's projects and operations, they "have more demand for information" (Lehn et al. 2009, p. 750).

Prior literature consistently reports a positive link between firm size and disclosure quality (e.g. Chow and Wong-Boren, 1987; Hossain et al., 1994; Singhvi and Desai, 1971; Inchausti, 1997). Prior studies that control for firm size in their regression models include Beekes and Brown (2006), Nelson et al. (2010) and Goodwin et al. (2009). Hence, the present study expects that a positive relationship exists between firm size and disclosure quality.

In measuring firm size, the natural log of market capitalisation (LMCAP) is favourable because total assets have been used as one of the criteria in the selection of the control sample. Consistent with prior literature on disclosure quality (e.g. Wallace and Naser, 1995; Hossain et al., 1994) the natural logarithm of market capitalisation (LMCAP) was used as a proxy for size.

5.6.3.2 PROFITABILITY (ROA)

Prior studies recognise that profitability potentially creates incentives for managers to provide more disclosure (e.g. Nelson et al., 2010; Debreceny and Rahman, 2005; Watson et al., 2002; Haniffa and Cooke, 2002). Managers in highly profitable firms are encouraged to provide better disclosure, given that profitable firms have more information to disclose about the projects they are involved in (Li et al., 2008). Higher levels of disclosure also signal that a firm is performing well and may, therefore, influence managers' remuneration and future career in a positive way (Singhvi and Desai, 1971).

Previous literature offers inconclusive findings on the associations between profitability and disclosure. While some studies report a positive relationship (e.g. Watson et al., 2002; Debreceny and Rahman, 2005; Singhvi and Desai, 1971), other studies recorded insignificant relationships (e.g. Inchausti, 1997; Wallace et al., 1999). As in Eng and Mak's (2003) study, profitability was measured by dividing net profit with total assets (Return on Assets), and this data was downloaded from the *DataStream* database.

5.6.3.3 AUDIT QUALITY (BIG4)

Agency theory views auditors as one of the monitoring agents that play a role in achieving greater disclosure quality (Jensen and Meckling, 1976). Credible external auditors are supposed to carry out sound audit processes and to provide relevant advice, which will influence managers to be more transparent. Reputable external auditors are supposed to be more resourceful, to have expertise in accounting and auditing standards, and to have more experience in handling audit work. As such, large audit firms are more competent in consulting their clients and providing higher quality information in their annual report (Wallace et al., 1994). The appointment of a large audit firm as an external auditor is also an indication of sound corporate governance (Cohen et al., 2002). Numerous studies control for audit quality when examining the association between corporate governance and disclosure quality (e.g. Ajinkya et al., 2005; Bassett et al., 2007; Nelson et al., 2010; Goodwin et al., 2009; Haniffa and Cooke, 2002). Several studies document a positive association between audit quality and disclosure quality (e.g. Inchausti, 1997; Raffournier, 1995). As a result, the current study predicts a positive link between audit quality and disclosure quality. Consistent with Lim et al. (2007), Carcello et al. (2006) and Frye and Wang (2010), a dummy was used in measuring audit quality (where Big 4 audit firms = 1, Non-big 4 audit firms = 0).

5.6.3.4 ANALYST FOLLOWING (ANALYST)

Agency theory views analysts as one of the monitoring tools that help to reduce agency cost (Jensen and Meckling, 1976). In this regard, Yu (2008) argues that analysts motivate firms to supply accurate information to users. As such, monitoring by financial analysts has the

potential to influence managers to provide better quality disclosure. [112]Moreover, Langberg and Sivaramakrishnan (2010, p. 604) note that "analysts' expertise and experience make them a valuable source of information for managers". In addition, Baginski and Hassell (1997) report that monitoring by financial analysts increases the accuracy of management earnings forecasts.

In support of this view, Marston (2008) documents that high analyst following is positively associated with higher investor relation activities by the UK firms. Lang and Lundholm (1996) report a positive link between analyst following and disclosure quality, while Lang and Marfett (2011) employ analyst following as a proxy for a firm's disclosure quality environment. Nonetheless, Chang et al. (2008) report a significant inverse relationship between analyst following and investor relations activities. Studies that consider analyst following as one of the determinants for disclosure quality include Chang et al. (2008), Lang and Lundholm (1993), Ajinkya et al. (2005) and Beekes and Brown (2006). Analyst following was measured using the number of analysts that follows each firm, and this is similar to the approach taken by Eng and Mak (2003) and Chang et al., (2008).

5.6.3.5 LEVERAGE (LEV)

Leverage could either induce or reduce incentives for managerial disclosure decisions. On the one hand, agency conflict is likely to occur in high leverage firms (e.g. Tsuji, 2011; Dey,

[112] The present study acknowledges that there is a potential reverse causality issue in association between disclosure and analyst variables. Langberg and Sivaramakrishnan (2010), Lang et al. (2004) and Boubaker and Labogerre (2008) discuss this issue, whereby a firm's disclosure policy determines the number of analysts following, given that (i) analysts largely depend on the information supplied by the management to make forecasts and analysis and (ii) they tend to uncover firms with a high concentration of ownership, where the blockholders have a lot of power. One of the possible solutions to this reverse causality issue is to use a simultaneous system of equation. Nonetheless, due to the limited timeframe and lack of proper data, such a test will not be performed. Nonetheless, this would be an interesting topic for future research.

2008; Leftwich et al., 1981). Agency theory holds that the agency cost in high leverage firms will be higher than in low leverage firms (Jensen and Meckling, 1976). The debt hypothesis of positive accounting theory suggests that high leverage firms tend to make income-increasing accounting choices in order to mitigate the high leverage in the eyes of shareholders (Watts and Zimmerman, 1986). In addition, Defond and Jiambalvo (1994) report that firms with high leverage are more likely to manipulate earnings in order to avoid debt violation cost. Taken together, these models suggest that high leverage potentially increases agency cost and, thereby, reduces the quality of a firm's disclosure.

On the other hand, leverage could also be a useful tool to discipline managers (Brown et al., 2011). Creditors are very concerned if they cannot get back what they have lent because managers have failed to spend their money wisely (Armstrong et al., 2010, p. 182). High leverage can limit managerial opportunistic behaviours such as investment in projects with high uncertainty (Myers, 1977) or empire building activities (Hope and Thomas, 2008), because firms have to use their cash to cover the debt (Jensen and Meckling, 1976). Moreover, firms with high leverage tend to produce higher quality information in order to mitigate their condition in the eyes of their creditors (Wallace and Naser, 1995). Dey (2008) finds that high leverage positively influences a firm's governance system.

Numerous empirical studies have hypothesised that leverage is one of the factors that will influence disclosure quality (e.g. Chow and Wong-Boren, 1987; Ahmad and Courtis, 1999; Raffournier, 1995; Hossain et al., 1994; Wallace et al., 1994; Wallace and Naser, 1995). Nevertheless, mixed findings are reported. The present study argues that leverage could have either a positive or a negative effect on disclosure quality. Consistent with Dey (2008),

leverage was measured, in this study, using the debt to asset ratio (long term debt divided by total assets). Prior studies that recognise leverage as one of the determinants of disclosure include Nelson et al. (2010), Eng and Mak (2003), Hossain et al. (1995), Raffournier et al. (1995) and Haniffa and Cooke (2002).

5.6.3.6 EARNINGS VARIABILITY (EARNVAR)

Earnings variability is a proxy for "firm level risk" (Farooque et al., 2010, p. 180). It measures the volatility of a firm's operating income (Kent et al., 2010) or of a "firm's operating environment and business model" (Francis et al., 2005, p. 297). According to Engel et al. (2010, p. 139), "the demand for monitoring of the financial reporting process is high when a firm has complex business operations and is subject to great risk of financial misstatement." Dey (2008) reports that high operating risk increases the effectiveness of a firm's governance. Hence, the present study presumes that there is a positive link between earnings variability and disclosure quality. Consistent with Farooque et al. (2005, 2010), it was measured using the standard deviation of the operating income scaled by sales. This approach is also closely similar to that taken by Kent et al. (2010) who use the standard deviation of operating revenue divided by lagged total assets.

5.6.3.7 INDUSTRY AND YEAR EFFECTS

Boone et al. (2007) claim that controlling for industry effects is able to cater for the heterogeneity factor, given that each industry shares "similar production technology and market conditions" (p. 76). Moreover, firms have a tendency to follow their peers when they are contemplating a disclosure decision. Hence, industry level information significantly influences a firm's disclosure environment (Piotroski and Roulstone, 2004). In addition,

Legitimacy Theory suggests that high political, public or regulatory pressures, and scrutiny over the firms in certain industries, can also increase or decrease incentives for disclosure between different industries. For example, Tilt and Symes (1999) reveal that firms in the mining and chemical industry are more thorough in environmental disclosure when compared to other industries, while Tilling and Tilt (2010) report that Rothmans increased corporate social responsibility disclosure acts as a defensive wall against attacks from the media regarding health. Highly regulated industries such as oil and gas (Whittred and Zimmer, 1990) and banking are presumed to provide better disclosure patterns than firms in less regulated industries. The pharmaceutical industry tends to manipulate their financial disclosure due to political pressure from governments to reduce the cost of medicine (Meyer et al., 2000). Therefore, in the current study, industry variation was captured using industry dummies, as in Beekes and Brown et al. (2006), Goodwin et al. (2009) and Haniffa and Cooke (2002). To control for the variation of year effects, a year dummy was also introduced in the model, as in Nelson et al. (2010) and Zaman et al. (2011).

5.6.4 Model presentation

DQ = BODIND + BODSIZE + BODMEET + ACSIZE + ACMEET + ACIND + ACEXP + ACMULT + CHAIRTEN + CHAIRMULT + CHAIRNONEXE + SUBSHR + NOSUBSHR + ROA + DTA + BIG4 + ANALYST + EARNVAR + LMCAP + 2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMERGOODS + CONSUMERSERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY----- [equation 2]

5.6.4.1 Simultaneity between disclosure quality and board independence

Assuming that simultaneity exists between corporate governance and disclosure quality, the present study employs a simultaneous system of equation based on the 2SLS regression. In this instance, disclosure quality and board independence are assumed to be endogenous, as

in Lim et al. (2007) and Cheng and Courtenay (2006). Disclosure quality and board independence (BODIND) equations are presented below:

DQ = BODIND + BODSIZE + BODMEET + ACSIZE + ACMEET + ACIND + ACEXP + ACMULT + CHAIRTEN + CHAIRMULT + CHAIRNONEXE + SUBSHR + NOSUBSHR + ROA + DTA + BIG4 + ANALYST + EARNVAR + LMCAP + 2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMER GOODS + CONSUMER SERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY + e ----- [equation 2a].

BODIND = **DQ** + BODSIZE + BODSHR + NOSUBSHR + SUBSHR + LREM + LMCAP + DTA + ROA + MTBV + PROFVAR + 2007 DUMMIES + 2006 DUMMIES + 2005 DUMMIES + OIL & GAS + CONSUMER GOODS + CONSUMER SERVICES + HEALTHCARE + TELECOMMUNICATION + UTILITIES + TECHNOLOGY + e ----- [equation 2b].

Where:

Table 5-1: Measurement for the disclosure quality equation

Disclosure Quality Equation	
DISQ =	Disclosure Award (1=Winner, 0=non-winner); Forward Looking Score
ACQUALITY =	1 [if ACSIZE =/> 3, ACIND=1, ACEXP=/>1 and ACMEET=/>3], 0 otherwise
ACQUALITYBR =	1 [if ACSIZE=/>3, ACIND=1, ACEXP=/>1 and ACMEET=/>4], 0 otherwise
ACMEET =	Audit committee meetings [1 = if audit committee meetings =>3, 0 = if otherwise]
ACIND =	Audit committee independence [1 = if all audit committee members are independent, 0 = if otherwise]
ACEXP =	Audit committee members with expertise [1 = if audit committee members with financial literacy is =/> 1, 0 = if otherwise]
ACMULT =	Average of additional directorships held by audit committee members
ACSIZE =	Number of audit committee member [1 = if audit committee members =/>3, 0 = if otherwise]
BODSIZE =	Number of board members
BODMEET=	Number of board meetings held during the year
BODIND =	Percentage of independent directors on the board [excluding chairman]
CHAIRNONEXE=	Status of the board chair [1 = non-executive, 0 = executive]
CHAIRTEN =	Number of years the chair has held the chair position
CHAIRMULT =	Number of additional directorships held by board chair
SUBSHR =	Total percentage of shares held by substantial (i.e. 3%/+) shareholders
NOSUBSHR =	Number of substantial shareholders (i.e. 3%/+) in a firm
EARNVAR=	Standard deviation of return on sales
ROA =	Return on assets
LEV =	Debt to asset ratio
ANALYST =	Number of analysts following
SIZE =	Natural log of market capitalisation
BIG4 =	Auditor a Big4 firm [Big4=1, Non-Big4=0]
MTBV =	Market to book value ratio
YEAR =	Year dummies
INDUSTRY =	Industry dummies
ε =	Error term

Table 5-2: Measurement for the board independence equation

Board Independence Equation	
DISQ =	Disclosure Award [1 = Winner, 0 = non-winner]; Forward Looking Score; Analyst forecast accuracy.
BODSIZE =	Number of board members
BODIND =	Percentage of independent directors on the board (excluding the chairman).
BODSHR =	Percentage of ordinary shares held by board members
LREM =	Log of total director's remuneration
PROFVAR =	Standard deviation of return on asset.
SUBSHR =	Total percentage of shares held by substantial (i.e. 3%/+) shareholders
NOSUBSHR =	Number of substantial shareholders (i.e. 3%/+) in a firm
ROA =	Return on assets
DTA =	Debt to asset ratio
ANALYST =	Number of analyst following
LMCAP =	Natural log of market capitalisation
BIG4 =	Auditor a Big4 firm (Big4 = 1, Non-Big4 = 0)
MTBV =	Market to book value ratio
YEAR =	Year dummies
INDUSTRY =	Industry dummies
ε =	Error term

It is worth noting that the disclosure quality equation 2a (above) is identical to equation 2. The BODIND equation is a new equation introduced into this system of equation, and it was constructed based on arguments and findings in the prior literature. Consistent with Lim et al. (2007) BODSIZE is controlled in the BODIND model because increases in the number of board members will potentially increase or decrease the percentage of independent directors serving in the board.

Relying on the proposition that audit committee ownership increases audit committee independence (Magena and Pike, 2005), board ownership (BODSHR) is expected to encourage managers to be more independent. Bhagat and Bolton (2008) find that board ownership can be a good trigger to improving a firm's overall governance system. Specifically, they claim that:

> Corporate boards have the power to make, or at least ratify, all important decisions including decisions about investment policy, management compensation policy, and board governance itself. It is plausible that board members with appropriate stock ownership will have the incentive to provide effective monitoring and oversight of important corporate decisions noted above; hence board ownership can be a good proxy for overall good governance" (p. 271).

Thus the present study assumes that BODSHR could potentially improve BODIND. Consistent with Farooque et al. (2005), BODSHR was measured using the total percentage of ordinary shares held by the directors. Monitoring by blockholders (SUBSHR and NOSUBSHR) may also influence the percentage of independent directors on the board (BODIND). Bhagat and Black (2002) find a positive association between the number of blockholders and board independence, suggesting that monitoring by a high number of blockholders increases the percentage of independent directors on board.

"According to agency theory, the aim of compensation contracts is to reward managers in such a way that they strive to maximise firm performance and shareholder's wealth" (Doucouliagos et al., 2007, p. 1364). Doucouliagos et al. (2007) further argue that compensation "should be based on the observable outcomes and that contract should be designed to motivate the agents' best performance" (p. 1365). As such, compensation contracts are one of the monitoring tools that reflect a board's independence in their decision making. It is supposed that board independence increases with remuneration. The present study controlled for director's remuneration (LREM), measured using the natural log of total director's remuneration, following Doucouliagos et al. (2007). PROFVAR, which is a proxy for firm-specific business risk is also included in the model. According to Demsetz and Lehn (1985), monitoring in highly volatile firms is hard and this creates a risk of the moral hazard problem. It is argued that a high volatility of income (as a proxy for a firm's level of risk) could reduce board independence, given that such a situation is likely to induce agency

conflict. In this study, PROFVAR was measured using the standard deviation of net income divided by total assets.

Firm size is also one of the potential determinants for BODIND, given that large firms can more easily afford to appoint a greater number of independent directors than small firms. Moreover, the complexities of business operation in large firms increase the necessity for more independent directors with a variety of knowledge and experience (Linck et al., 2008). Large firms are also involved in more diverse business operations than small firms (Lehn et al., 2009) and they therefore require more members on the board for the purposes of monitoring, supervising and consulting. Boone et al. (2007) propose that large firms need more independent directors because they are exposed more to agency problems in comparison to small firms. Firm size is measured using the natural log of market capitalisation (LMCAP). Bhagat and Black (2002) report a significant positive association between firm size and the presence of independent directors. High leverage (DTA) in a firm has potential to restrict the appointment of independent directors to the board (BODIND) due to a lack of cash. The percentage of independent directors on the board (BODIND) can also be influenced by the profitability of the firms (ROA), where more profitable firms can afford to employ more independent directors on the board.[113]

According to Lehn et al. (2009, p. 750):

> Firms with higher growth opportunities generally require nimbler governance structures. Since these firms tend to operate in more volatile business environments than low-growth firms, they require governance structures that facilitate rapid decision making and redeployment of assets. By more volatile business environments, we refer to markets

[113] The potential for reverse causality between firm performance and independent directors is acknowledged, where the presence of independent directors on a board also has potential for increasing a firm's performance. This issue is taken into account in Project Three, which deals with the co-determination between disclosure quality, earnings management, board independence and corporate performance.

> characterized by frequent technological change, unstable market shares, rapidly changing relative prices, and so forth.

Therefore, growth is viewed as one of the important determinants of board independence. Bhagat and Black (2002) find a significant positive link between a firm's growth and board independence, while Lehn et al. (2009) report a significant inverse relationship between growth opportunity and board characteristics (i.e., board size). Coles et al. (2008) find a similar result to Lehn et al. (2009), by using market to book value ratio as a growth proxy. These findings indicate that a firm's growth may have an influence on board independence. Therefore, the present study employed Market-to-book value ratio as a proxy for future market expectation growth. This approach is similar to that taken by Coles et al. (2008), Debreceny and Rahman, (2005), Ajinkya et al. (2005) and Marston (2008).

Agrawal and Knoeber (1999) report a significant link between industry type and board composition. Year and industry effects were controlled using dummies, after Beekes and Brown (2006), Nelson et al. (2010) and Goodwin et al. (2009). Boone et al. (2007, p.76) suggest that firms in the same industry share "similar production technologies and market condition". Therefore, the unobserved industry effects can be controlled using industry dummies.

In order to run 2SLS regression, this present study employed an instrumental variable for each endogenous variable, consistent with Cornett et al. (2009). Two general assumptions of the instrumental variable are (i) it is correlated with the endogenous variable (ii) it is not correlated with error term (Cornett et al. 2009). When disclosure quality is treated as endogenous, firm size (LMCAP) has been chosen as an instrumental variable. Firm size found

to be strongly correlated to disclosure quality hence fit to the general assumption of a sound instrumental variable. [114] Large firms tend to disclose more because they have more cash and resources (Buzby, 1975), are in need of external capital (Donelly and Mulcahy, 2008) and subject to public scrutiny (Camfferman and Cooke, 2002). When board independent (BODIND) is treated as endogenous variable, BODSIZE is used as instrumental variable BODIND given that the increase or decrease of BODIND depends on the BODSIZE (Lim et al. 2007). [115]

5.6.5 Data and statistical analyses

Several pieces of missing data are acknowledged (there are less than five overall) for corporate governance variables (e.g. duration of chairman tenure and audit committee multiple directorships). In this case, the missing data was replaced by the mean of the valid data, as suggested by Hair et al. (2006). [116]

Before the regression test is conducted, for the normality of the data were checked using the Shapiro-Wilk test and the Shapiro-Francia test.[117]. The linearity is observed using the Q-Q Plot, and linear relationships is found in most of our variables. The Variance Inflation factor (VIF) and we concluded that multicollinearity is not an issue, given that the maximum

[114] The correlation coefficient between LNMCAP and IRAWARD, FLSCORE and AFA are 41%, 40% and 19% respectively.

[115] In the regression analysis, the t-value for both instrumental variables (i.e., LNMCAP and BODSIZE) are generally more than 3, which indicates a valid instrumental variable, according to Adkins and Hill (2007).

[116] The present study retains a few companies with missing data by replacing the missing value with the mean of the valid data, as suggested by Hair et al. (2008). The missing value cases are random and only affect a few firms (i.e., overall, less than 5 have missing data). The option of deleting firms with missing data was not chosen, to avoid sample reduction.

[117] The present study found that the value of "w" in most of the data is around 0.9, which indicates normality. However, we acknowledge that some of the data is not normally distributed. Firm size (LMCAP) is transformed to natural log to normalise the data and all continuous variables were winsorized at 1% top and bottom to reduce the effect of outliers, as in Cornett et al. (2009).

VIF is below 4, in the case of firm size (SIZE)[118]. The Breush-Pagan test and the White test were performed to check for heteroskedasticity and we noted that the heteroskedasticity is mild, given that the result for both test contradict each other. We corrected heteroskedasticity using robust standard error in all of our models (except in Logistic regression). We also performed a similar analysis to the residual in our data (refer to the Appendix 2). We found that our residual is normally distributed and largely fit for the parametric test, thus it is assumed that parametric test is suitable for our data.

[118] Although Allison (1999) notes that a VIF of more than 2.5 is critical especially in the case of logistic regression, we argue that the exclusion of firm size (SIZE) will introduce misspecification bias which is a relatively more serious issue than multicollinearity. Therefore firm size (LMCAP) is to be retained in our model.

6 Corporate Governance and Disclosure Quality: Results and Discussion

6.1 Introduction

In this chapter, the results from a series of tests including descriptive statistics, pairwise correlation, the univariate test and the multivariate test will be presented. The findings will also be explained. Finally, the conclusion will summarise the findings of the project.[119]

6.2 Descriptive statistics

Table 6-1 presents the descriptive statistics for disclosure quality, such as FLSCORE, IRAWARD, and AFA as well as the variables for governance and firm-characteristics.[120] The descriptive statistics show that the mean (median) of FLSCORE is 99.16 (87) with a range from 9 to 423. In this study, the high forward looking disclosure indicates that the extent of forward looking disclosure has substantially increased over time. Given that the IRAWARD variable is dichotomous (1 = winner, 0 = non-winner), the mean is 0.5. The mean (median) for AFA is recorded at -0.0112 (-0.0053).

[119] Some explanation of the descriptive statistics, Pairwise correlation, t-test and Mann-Whitney U test has been provided in Chapter Four, namely in respect to disclosure quality, corporate governance and earnings management: Results and discussions. To avoid repetition, only a brief explanation is provided in this section.
[120] Given the limited number of words allowed in the present study, in this chapter variables will be referred to using their respective abbreviations.

Table 6-1: Descriptive statistics[121]

VARIABLES	MEAN	STD DEV	MIN	MAX	25%PCTILE	50% PCTILE	75% PCTILE
FLSCORE	99.16	64.95	9	423	55	87	130
IRAWARD	0.5	0.5	0	1	0	0.5	1
AFA	-0.0112	0.0181	-0.123	-0.00002	-0.0123	-0.0053	-0.00213
ACQUALITY	0.779	0.415	0	1	1	1	1
ACQUALITYBR	0.565	0.496	0	1	0	1	1
ACIND	0.896	0.305	0	1	1	1	1
ACEXP	0.9068	0.2911	0	1	1	1	1
ACMEET	0.9517	0.214	0	1	1	1	1
ACSIZE	0.9517	0.214	0	1	1	1	1
ACIND^{A}	97.06	8.854	66.66	100	100	100	100
ACEXP^{A}	35.82	19.32	0	100	25	33.33	50
ACSIZE^{A}	3.62	0.924	2	6	3	3	4
ACMEET^{A}	4.312	1.856	2	13	3	4	5
ACMULT	2.378	1.15	0.3	6.3	1.6	2.3	3
BODSIZE	9.49	2.67	5	18	8	9	11
BODSIZE^{A}	0.448	0.498	0	1	0	0	1
BODIND	56.86	10.345	33.33	80	50	57.14	63.63
BODIND^{A}	0.848	0.359	0	1	1	1	1
BODMEET	8.710	2.921	4	21	7	8	10
BODMEET^{A}	0.458	0.499	0	1	0	0	1
CHAIRNONEXE	0.862	0.345	0	1	1	1	1
CHAIRTEN	5.82	5.91	1	34	2	4	7
CHAIRMULT	2.35	1.804	0	8	1	2	3
SUBSHR	30.72	16.33	37	77.17	18.95	29.13	40.27
NOSUBSHR	4.78	2.166	1	11	3	5	6
PROFIT	7.21	6.64	-17.72	32.87	3.61	6.8	10.2
LEV	24.745	15.292	0.05	74.14	15.5	22.55	31.28

[121] All continuous variables (except SIZE) were winsorised at the top and bottom 1%. The descriptive statistics for year and industry dummies are not reported.

ANALYST	14.32	7.57	0	37	9.92	13.29	19
BIG4	0.968	0.174	0	1	1	1	1
GROWTH	3.74	6.12	-44.7	21.59	2.23	3.37	4.4
LMCAP	14.57	1.46	11.09	18.52	13.6	14.36	15.75
SIZE	£7,082,128,000	£17,500,000,000	£17,240,000	£122,000,000,000	£823,089,000	£1,740,657,000	£6,907,299,000
EARNVAR	0.838	1.35	0	7.16	0	0.28	1.14

FLSCORE = the total number of forward looking statement in the annual report; **IRAWARD** = 1 [IR Magazine Award winners], 0 = Non-winners; **ACQUALITY** = 1 [if ACIND = 1, and ACMEET => 3 (as suggested in the UK CG Code), and ACEXP => 1, and ACSIZE => 3], otherwise = 0; **ACQUALITYBR** = 1 [if ACIND = 1, and ACMEET => 4 (as suggested in the Blue Ribbon recommendation), and ACEXP = 1, and ACSIZE => 3], 0 = otherwise; **ACSIZE** = (1 = if the number of audit committee members is equal to or more than 3, 0 = if otherwise); **ACEXP** = (1 = if the number of audit committee members with financial literacy is equal to or more than 1, 0 = if otherwise); **ACMEET** = number of audit committee meetings per year; **ACIND** = 1 [if all audit committee members are independent], 0 = otherwise; **ACMULT** = the average number of additional directorships held by audit committee members; **CHAIRNONEXE** = (1 = if the chairman is non-executive, 0 = if otherwise); **CHAIRMULT** = the total number of chairmen holding multiple directorships; **CHAIRTEN** = the number of years the chairman has been holding the position; **SUBSHR** = the total percentage of substantial shareholders who own 3% or more; **NOSUBSHR** = the total number of substantial shareholders who own more than 3% of the shareholdings; **BODIND** = (1 = if the percentage of independent directors over the total number of directors (excluding chairman) is equal to or more than 50%, 0 = if otherwise); **BODMEET** = the number of board meetings per year **BODSIZE** = the total number of board members; **LMCAP** = the natural log of market capitalisation; **SIZE** = the absolute value for market capitalisation; **LEV =** the debt to asset ratio**;** **GROWTH** = the Market to Book value ratio; **PROFIT =** The Return on Assets ratio; **ANALYST** = the number of analysts following; **BIG4** = 1 [if the firm is audited by BIG4 audit firms], 0 = if otherwise; **ACIND**^{A} = the percentage of independent audit committee members; **ACEXP**^{A} = the percentage of audit committee members with financial literacy; **ACSIZE**^{A} = the total number of audit committee members; **ACMEET**^{A} = 1 [if the frequency of audit committee meetings is =>3 per year,] Otherwise = 0; **BODSIZE**^{A} = (1 = large board size, 0 = small board size); **BDIND**^{A} = the percentage of independent directors in a company [excluding chairman]; **BODMEET**^{A} = (1 = high board meeting frequency, 0 = low board meeting frequency); **EARNVAR** = the standard deviation of return on sales.

With respect to the audit committee characteristics of the firms in the sample, the mean (median) for $ACIND^{A}$ is 97.06% (100%), which indicates that compliance with the UK Corporate Governance Code (2010) is high. The average (median) ACMULT is 2.37 (2.3), which is somewhat similar to the US findings of Laksmana (2008) who report an average of 2.51. The audit committees in the sample meet on average ($ACMEET^{A}$) 4.312 times a year. This result is higher than the mean of 3.70 reported by Li et al (2008) in their UK study. However, it is in contrast with the mean of 8.40 reported for a 2004 sample of US firms by Hoitash et al. (2009). This indicates that audit committees in the less regulated, 'comply or explain', environment in the UK meet less frequently than their US counterparts. The mean (median) for audit committee quality, measured using (ACQUALITY), is 0.779 (1). This signals that large numbers of companies comply with the recommended norm in the UK. When ACMEET is redefined following the Blue Ribbon recommendation (1999), ACQUALITYBR reports a mean (median) of 0.565 (1).

The average for BODIND is 56.86%, suggesting that more than half of the boards are comprised of independent directors as proposed by the UK Corporate Governance Code (2010). This is marginally higher than the 47% reported by Li et al (2008) for the UK. However, this figure is lower when compared to Laksmana (2008) who reports that 79% of boards are comprised of independent directors in US firms in the year 2002. Laksmana (2008) also finds that the mean number of board meetings is 8.74. This compares closely with the mean for BODMEET of 8.710 in the present study and indicates that the frequency of board meetings in the US and UK is quite similar. On average the chairman has served on the board (CHAIRTEN) for 5.82 years and the mean number of additional directorships held by the board chair (CHAIRMULT) is 2.35. About 86% of the sample companies are chaired by

a non-executive director (CHAIRNONEXE). The mean (median) percentage of substantial shareholdings (SUBOWN) is 30.72% (29.13) and this is higher than the mean of 19.48% blockholder ownership reported by Kim (2010) for the US. EARNVAR, which is a proxy for firm-level risk, reports an average of 0.838, with a range from 0 to 7.16. This is slightly higher than the findings of Farooque et al. (2010) who report a range from 0 to 5.384 in their Australian study.

6.3 Univariate analysis

6.3.1 T-test and Mann-Whitney U test

Table 6-2 presents the results from the univariate tests, namely, the t-test (Panel A) and the Mann-Whitney U test (Panel B). The univariate test using pooled data reveals that FLSCORE is higher for the winners group compared to the non-winners group ($p<0.01$). This indicates that winners of the IRAWARD disclose more forward looking information compared to non-recipients of the award.

Table 6-2: T-test and Mann-Whitney U test[122]

		(A) t-test			(B) Mann-Whitney U test		
VARIABLES	**NON-WINNERS/ WINNERS**	**Mean**	***t***	**p**	**Rank Sum**	**z**	**p**
FLSCORE	0 1	80.96 117.34	-4.96	0.000 ***	17958 24237	-4.4	0.000 ***
AFA	0 1	-0.014 -0.008	-2.61	0.0097 ***	14579.5 17805.5	-2.76	0.0059 ***
ACMEET	0 1	0.910 0.993	-3.34	0.0010 ***	20227.5 21967.5	-3.28	0.001 ***
ACIND	0 1	0.868 0.924	-1.543	0.1238	20517.5 21677.5	-1.54	0.1236
ACEXP	0 1	0.896 0.917	-0.605	0.5460	20880 21315	-0.61	0.545
ACSIZE	0 1	0.937 0.965	-1.094	0.274	20807.5 21387.5	-1.1	0.274
BODIND[A]	0 1	0.834 0.862	-0.653	0.5143	20807.5 21387.5	-0.65	0.5134
BODSIZE[A]	0 1	1.303 1.593	-5.17	0.000 ***	18052.5 24142.5	-4.95	0.000 ***
BODMEET[A]	0 1	0.421 0.497	-1.295	0.1961	20300 21895	-1.29	0.1956
ACMEET[A]	0 1	3.813 4.806	-4.719	0.000 ***	17226.5 24968.5	-5.67	0.000 ***
ACIND[A]	0 1	96.18 97.94	-1.696	0.091 *	20493 21702	-1.6	0.1091
ACEXP[A]	0 1	37.48 34.15	1.47	0.1427	22638.5 19556.5	2.21	0.027 **
ACSIZE[A]	0 1	3.434 3.793	-3.363	0.0009 ***	18793.5 23401.5	-3.5	0.0005 ***
BODIND	0 1	55.72 57.99	-1.88	0.060 *	19968 22227	-1.6	0.1109
BODSIZE	0 1	8.66 10.32	-5.563	0.000 ***	17513.5 24681.5	-5.1	0.000 ***
BODMEET	0 1	8.579 8.841	-0.763	0.445	20140.5 22054.5	-1.35	0.1766
ACQUALITY	0 1	0.731 0.827	-1.989	0.048 **	20082.5 22112.5	-1.98	0.0478 **
ACQUALITYBR	0 1	0.414 0.717	-5.456	0.000 ***	17907.5 24287.5	-5.2	0.000 ***
ACMULT	0 1	2.203 2.55	-2.63	0.009 ***	19405.5 22789.5	-2.8	0.0176 **
CHAIRNONEX	0 1	0.807 0.917	-2.75	0.0063 ***	19937.5 22257.5	-2.72	0.0065 ***

[122] All continuous data (except SIZE) were winsorised at 1% top and bottom. The *t-test* for industry and year dummies is not reported.

CHAIRTEN	0 1	6.910 4.73	3.186	0.0016 ***	23635 18560	3.57	0.0003 ***
CHAIRMULT	0 1	1.958 2.74	-3.79	0.0002 ***	18562 23633	-3.61	0.0003 ***
SUBSOWN	0 1	35.58 25.86	5.301	0.000 ***	24626.5 17568.5	4.942	0.000 ***
NOSUBSHR	0 1	5.165 4.4	3.0529	0.0025 ***	23093 19102	2.827	0.0047 ***
GROWTH	0 1	3.896 3.587	0.429	0.667	20311.5 21883.5	-1.1	0.271
LMCAP	0 1	13.97 15.17	-7.63	0.000 ***	15805 26390	-7.4	0.000 ***
MCAP	0 1	£2,242,472,000 £1,190,000,000,000	-4.886	0.000 ***	15805 26390	-7.41	0.000 ***
DTA	0 1	25.96 23.53	1.36	0.1749	22274 19921	1.648	0.0993 *
ANALYST	0 1	10.56 18.08	-9.739	0.000 ***	14568.5 27626.5	-9.15	0.000 ***
BIG4	0 1	0.965 0.972	-0.337	0.736	21025 21170	-0.34	0.735
ROA	0 1	6.525 7.89	-1.76	0.079 *	19926.5 22268.5	-1.64	0.1010
EARNVAR	0 1	1.057 0.636	2.585	0.01 **	22826 19369	2.449	0.014 **

Concerning the corporate governance variables, the t-test indicates that IRAWARD winning firms have audit committees which are active, large and independent (ACMEET, $p<0.01$; $ACMEET^{A}$, $p<0.01$; $ACSIZE^{A}$, $p<0.01$; $ACIND^{A}$, $p<0.1$). Their boards also tend to be larger (BODSIZE, $p<0.01$; $BODSIZE^{A}$, $p<0.01$) and chaired by a non-executive director (CHAIRNONEXE, $p<0.01$), with the chairman holding shorter tenure than in the non-winners (CHAIRTEN, $p<0.01$). Also, both the audit committee members and the board chair of winning firms tend to hold additional multiple directorships (ACMULT, $p<0.01$; CHAIRMULT, $p<0.01$). However, substantial shareholding (SUBSHR, $p<0.01$) and the number of substantial shareholders (NOSUBSHR, $p<0.01$) of the IRAWARD recipients are significantly low compared to the non-winners group. The audit committee quality proxies, ACQUALITY ($p<0.01$) and ACQUALITYBR ($p<0.01$), are higher in the IRAWARD winners group when compared to the non-winners group. This indicates that most of the firms in the winners

group comply with the recommended norms in the UK. Other variables including ACIND, ACEXP, ACSIZE, BODMEET, $ACEXP^A$ and $BODIND^A$ show no significant difference between the mean for the winners group and that for the non-winners group. However, in the Mann-Whitney U test results (refer Panel B), the non-winners group reports a higher $ACEXP^A$ ($p<0.05$) than the winners group. This indicates that the compliance to the recommended norm with regard to audit committee financial expertise is higher in the non-winners group than in the winners group. Other variables reported qualitatively similar findings to the t-test.

6.3.2 Pairwise correlation

Table 6-3 presents the Pairwise correlation for the dependent and independent variables used in the regression analysis. This analysis was carried out to observe the negative or positive relationship among all the variables and to check for multicollinearity. A correlation coefficient (of above 0.9 and variance inflation factor (VIF) more than 10 indicates that multicollinearity is present (Hair et al., 2008) and this might lead to accidental significant results. Correlation coefficients in Table 6-3 show that the highest correlation is 0.65, which is between ANALYST and LMCAP. Further tests reveal that VIF is below 10 for all variables, thus confirming that multicollinearity is not an issue.

In brief, the correlations provide support for hypotheses; relating to the influence of both audit committee and board of director characteristics on disclosure quality. With respect to the first proxy for disclosure quality, which is IRAWARD, Table 6-3 documents a positive significant association between IRAWARD and ACQUALITY ($p<0.05$), ACQUALITYBR ($p<0.01$), ACMEET ($p<0.01$), BODIND ($p<0.1$), CHAIRNONEXE ($p<0.01$), BODSIZE ($p<0.01$), CHAIRMULT

(p<0.01) and ACMULT (p<0.01). As with FLSCORE, the present study also documented that SUBSHR (p<0.01) and NOSUBSHR (p<0.01) are negatively correlated with IRAWARD. Besides that, control variables such as LMCAP and ANALYST also record positive significant associations with the receipt of IRAWARD.

This study also finds that FLSCORE, as one of the three measures for disclosure quality, has a positive significant association with ACQUALITY (p<0.01), ACQUALITYBR (p<0.01), ACMEET (p<0.01), ACIND (p<0.01), ACEXP (p<0.01), ACSIZE (p<0.05), BODMEET (p<0.05), BODIND (p<0.01), CHAIRNONEXE (p<0.01), CHAIRMULT (p<0.01) and BODSIZE (p<0.01). Nevertheless, the pairwise correlation also documents that SUBSHR (p<0.01) and NOSUBSHR (p<0.01) are significantly and negatively correlated with FLSCORE. With respect to the control variables, this study finds that LMCAP (p<0.01), BIG4 (p<0.01) and ANALYST (p<0.01) also have significant positive associations with FLSCORE. In relation to the third proxy for disclosure quality, which is AFA, the pairwise correlation reports that BODIND is negatively correlated with AFA, while ACMULT and CHAIRMULT are positively related to AFA at p<0.1 and p<0.1 respectively.

Table 6-3: Pairwise correlation

			1	2	3	4	5	6	7	8	9	10	11	12
1.	IRAWARD		1.00											
2.	FLSCORE		**0.28**	1.00										
3.	AFA	0.16	**0.16**	*0.13*	1.00									
4.	ACMEET		**0.19**	**0.18**	-0.03	1.00								
5.	ACIND		0.09	**0.18**	0.04	**0.19**	1.00							
6.	ACEXP		0.04	**0.19**	-0.09	**0.2**	0.01	1.00						
7.	ACSIZE		0.06	*0.13*	-0.05	**0.17**	-0.07	**0.37**	1.00					
8.	BODMEET		0.05	*0.12*	-0.03	**0.16**	-0.07	0.03	0.05	1.00				
9.	BODIND		0.11	**0.21**	-0.11	0.08	**0.17**	0.04	**0.20**	0.08	1.00			
10.	CHAIRNONEX		**0.16**	**0.16**	0.06	0.00	-0.07	0.04	0.00	0.03	0.0	1.00		
11.	CHAIRTEN		**-0.18**	*-0.13*	0.04	-0.05	0.03	**-0.24**	**-0.22**	*-0.1*	*-0.1*	**-0.3**	1.00	
12.	ACMULT		**0.15**	0.05	0.11	-0.02	0.02	0.06	0.01	0.07	0.05	0.03	-0.0	1.00
13.	SUBSOWN		**-0.29**	**-0.24**	-0.06	*-0.13*	*-0.13*	-0.05	-0.1	-0.1	*-0.1*	-0.1	**0.19**	-0.1
14.	CHAIRMULT		**0.22**	**0.23**	0.11	0.04	0.05	0.08	0.04	0.01	-0.0	**0.28**	**-0.2**	**0.21**
15.	BODSIZE		**0.31**	**0.37**	0.09	**0.21**	**0.15**	*0.12*	**0.2**	*-0.1*	0.06	0.05	0.02	-0.0
16.	NOSUBSOWN		**-0.17**	**-0.16**	-0.03	0.03	-0.00	-0.07	-0.08	0.04	-0.0	-0.0	0.0	0.0
17.	LMCAP		**0.41**	**0.4**	**0.19**	0.04	*0.14*	0.11	**0.2**	-0.0	**0.27**	**0.14**	-0.0	-0.0
18.	BIG4		0.02	**0.17**	-0.01	**0.24**	**0.2**	0.01	**0.24**	0.0	0.14	-0.0	-0.0	-0.1
19.	ANALYST		**0.49**	**0.4**	**0.16**	**0.21**	*0.13*	0.11	**0.28**	-0.0	**0.27**	*0.15*	*-0.2*	0.03
20.	PROFIT		0.1	0.04	*0.13*	0.03	0.09	-0.07	-0.07	-0.1	0.1	-0.0	0.0	-0.0
21.	LEV		-0.08	-0.05	*-0.14*	-0.04	-0.02	0.02	0.05	0.01	0.06	*0.13*	-0.0	*-0.1*
22.	EARNVAR		*-0.15*	0.03	-0.12	0.09	0.02	0.02	0.09	**0.21**	*0.13*	0.06	-0.1	-0.0
23.	ACQUALITY		*0.12*	**0.29**	-0.05	**0.42**	**0.61**	**0.6**	**0.4**	-0.0	**0.19**	-0.0	*-0.1*	-0.0
24.	ACQUALITYBR		**0.31**	**0.34**	-0.02	**0.22**	**0.39**	**0.36**	**0.26**	*0.13*	**0.21**	0.0	-0.2	0.1

Table 6-3: Continued

			13	14	15	16	17	18	19	20	21	22	23	24
1	IRAWARD													
2	FLSCORE													
3	AFA													
4	ACMEET													
5	ACIND													
6	ACEXP													
7	ACSIZE													
8	BODMEET													
9	BODIND													
10	CHAIRNONEX													
11	CHAIRTEN													
12	ACMULT													
13	SUBSOWN		1.00											
14	CHAIRMULT		0.0	1.00										
15	BODSIZE		-0.0	**-0.2**	1.00									
16	NOSUBSOWN		**0.56**	0.0	**-0.3**	1.00								
17	LMCAP		**-0.4**	0.07	**0.56**	**-0.4**	1.00							
18	BIG4		-0.1	-0.1	**0.2**	-0.1	0.1	1.00						
19	ANALYST		**-0.4**	0.11	**0.5**	**-0.3**	**0.65**	**0.27**	1.00					
20	PROFIT		-0.1	0.0	-0.0	-0.0	**0.2**	0.0	**0.2**	1.00				
21	LEV		0.03	-0.1	-0.1	-0.0	0.1	0.0	-0.0	*-0.1*	1.00			
22	EARNVAR		0.0	-0.0	0.07	0.06	-0.0	0.1	0.0	-0.1	0.0	1.00		
23	ACQUALITY		**-0.2**	0.07	**0.23**	-0.1	**0.22**	**0.28**	**0.24**	0.0	0.1	0.06	1.00	
24	ACQUALITYBR		**-0.2**	0.1	**0.3**	**-0.2**	**0.31**	**0.2**	**0.29**	0.05	0.03	**0.15**	**0.59**	1.00

Notes: Figures in **bold**, *italics* and underlines indicates that the coefficient is significant at p<0.01, p<0.05 and p<0.1 respectively. Correlation coefficient for year and industry dummies not reported.

6.3.3 Complementary vs. substitutive tests

The pairwise correlation can be used to observe the basic complementary or substitutive link between two variables (Vafeas, 2005). The present study intends to understand the nature of the relationship between governance variables, given that both internal and external governance might have complementary or substitutive effects on monitoring activities (Brown et al., 2011; Vafeas, 2005; Doidge et al., 2007). With regard to the substitutive and complementary roles between internal governance systems (i.e., board and audit committee characteristics), there is a positive correlation between audit committee characteristics (e.g. ACMEET, ACIND, ACEXP, ACSIZE) and board characteristics (e.g. BODMEET, BODIND, CHAIRNONEXE, CHAIRMULT, ACMULT and BODSIZE). This confirms the complementary nature of the roles of an audit committee and a board of directors in improving disclosure quality. Exceptions appear in the case of (i) BODMEET and ACIND, (ii) ACMULT and ACMEET, and (iii) CHAIRNONEXE and ACIND, which reveal negative correlations, hence indicating substitutive relationships.

Another interesting finding is in respect to the complementary or substitutive nature of internal governance (i.e., board and audit committee characteristics) in relation to external governance (i.e., substantial shareholding, analyst following and audit quality) in providing monitoring and advice. A complementary link is detected between (i) NOSUBSHR and ACMEET, and (ii) NOSUBSHR and BODMEET, thus signalling that the number of substantial shareholders has an incremental effect with board meeting frequency when it comes to enhancing disclosure quality. The rest of the results show that SUBSHR and NOSUBSHR consistently reports negative

correlations with internal governance variables (i.e., audit committee characteristics and board characteristics). In particular, the inverse correlation of SUBSHR and NOSUBSHR with audit committee characteristics (e.g. ACMEET, ACIND, ACEXP, and ACSIZE) reveal that SUBSHR and NOSUBSHR have a substitutive effect on audit committee characteristics in respect to improving disclosure quality. Moreover, the result reveals that audit committee characteristics (e.g. ACMEET, ACIND, ACEXP, ACSIZE) are positively related to other external governance mechanisms (e.g. BIG4 and ANALYST). This preliminary finding implies that audit committees play complementary roles to boards of directors and external governance in respect to improving a firm's disclosure quality, especially where a weak monitoring environment is provided by blockholders (SUBSOWN & NOSUBSOWN).

With regard to the incremental effects of the external components of corporate governance (i.e., SUBSHR, NOSUBSHR, ANALYST, BIG4), the pairwise correlation shows a clear complementary relationship between BIG4 and ANALYST. However, both of these variables are substitutive to SUBSHR and NOSUBSHR. Overall, the present study demonstrates that both complementary and substitutive interactions within internal governance and external governance systems are observable.

This present study also tries to use interaction terms to test the complementary or substitutive effect of board quality and audit committee quality in improving firm's disclosure quality. This present study create an interaction terms BODQUALITY*ACQUALITY to be included in the regression model. BODQUALITY is a composite measure for board characteristics, where firms

will be tagged as 1 if BODSIZE is below the median, the chairman is non-executive director and the BODIND (excluding chairman) is more than 50%, otherwise 0.[123] ACQUALITY is a composite measure for audit committee quality, where firms will be coded as 1, if firms ACSIZE is equal or more than 3, ACEXP is at least one, ACMEET is equal or more than 3, and ACIND is 100%, otherwise 0, following Zaman et al. (2011). If the interaction terms BODQUALITY*ACQUALITY revealed significant positive relationship with disclosure quality, this suggest that BODQUALITY and ACQUALITY are complementary each other in increasing firms disclosure quality, while substitutive relationship between BODQUALITY and ACQUALITY is recorded when the interaction terms BODQUALITY*ACQUALITY revealed a significant negative relationship.

Table 6-4: Results of the Interaction Terms[124]

	(a) Main effect			(b) Moderating effect			(c) F-test/Wald test
DV= IRAWARD	coef	t	p	coef	t	p	
Bodquality	-0.63	-1.73	0.08*	-1.25	-1.54	0.122	
Acquality	0.068	0.15	0.883	-0.168	-0.31	0.755	
Bodquality*Acquality				0.76	0.87	0.386	Chi^2=0.75, p>Chi^2=0.3863
N=290	LR Chi^2=151.20, p>Chi2=0.000, Pseudo R^2 =0.3761			LR Chi^2=151.96, p>Chi2=0.000, Pseudo R^2 =0.3780			
DV=FLSCORE	coef	t	p	coef	t	p	
Bodquality	-0.08	-1.47	0.141	-0.112	-0.77	0.443	
Acquality	0.253	2.91	0.004	0.241	2.17	0.03	
Bodquality*Acquality				0.033	0.22	0.829	Chi^2=0.05, p>Chi^2=0.8285
N=290	Wald Chi^2=251.48, p>Chi2=0.000, Pseudo R^2 =0.3774			Wald Chi^2=251.64, p>Chi2=0.000, Pseudo R^2 =0.3774			

[123] This present study had also tried to redefine BODQUALITY by including BODMEET (that is the BODMEET must be above the median). However, the regression result of the interaction terms of new redefined BODQUALITY also shown insignificant result. The Variance Inflation Factor (VIF) for all models is below 10, suggesting no indication of multicollinearity.

[124] In (a) main effect and (b) moderating effect, other variables including blockholders characteristics, chairman characteristics and related control variables are included in the model, but the full results are not reported.

DV=AFA	coef	t	p	coef	t	p	
Bodquality	0.285	1.37	0.173	0.94	2.46	**0.01****	
Acquality	-0.47	-1.9	**0.06***	-0.15	-0.46	0.64	
Bodquality*Acquality				-0.83	-1.82	**0.07***	F=3.31, p>F=0.07
N=254	F=1.85, p>F=0.012, Pseudo R^2 =0.0739			F=1.78, p>F=0.015, Pseudo R^2 =0.075			

Results for the regression with and without interaction terms are tabulated in Table 6-4. When IRAWARD and FLSCORE are used as a proxy for disclosure quality in Table 6-4, results revealed that BODQUALITY*ACQUALITY are insignificant. This suggests that ACQUALITY has no complementary or substitutive effect with BODQUALITY in improving disclosure quality. This result also supported with insignificant Wald test, hence signalling that BODQUALITY*ACQUALITY make no significant contribution to the model. However, when AFA is employed as a proxy for disclosure quality, BODQUALITY*ACQUALITY revealed a significant negative relationship at $p<0.1$. This finding demonstrate that BODQUALITY and ACQUALITY are substitutive each other in increasing firms disclosure quality. Another point worth mentioning is that, the negative coefficient of ACQUALITY that was significant (before the inclusion of the interaction terms) becomes insignificant to the model (after the inclusion of the interaction terms). This suggests that the interaction terms BODQUALITY*ACQUALITY is one of the omitted variables that should be included in the model to reduce model misspecification bias and to improve conflicting result. To support this view, the BODQUALITY also change from insignificant (prior to the inclusion of interaction terms) to a significant positive relationship with AFA at $p<0.05$. The significant F-test statistics at $p<0.1$ also indicates that BODQUALITY*ACQUALITY is making a significant incremental effect to the model.

6.4 Multivariate analysis

The present study reports the results for three measures of disclosure quality: IRAWARD, FLSCORE and AFA in Tables 6-5, 6-6 and 6-7 respectively. There are six models available for each table. Model One only covers specific control variables, while Model Two includes board of directors characteristics and Model Three includes audit committee characteristics separately. Both board characteristics and audit committee characteristics are included in Model Four. In Model Five, the individual audit committee variables are replaced with a composite measure (ACQUALITY) as a proxy for audit committee strength. In Model Six ACQUALITY is replaced with ACQUALITYBR, which shares the same criteria as ACQUALITY except that the frequency of audit committee meetings must be at least four times a year. In the following sections, the present study will first discuss the results for our first measure of disclosure quality, IRAWARD. Thereafter, the results for the second measure, which is FLSCORE, will be covered, followed by a discussion of the third measure for disclosure quality, which is AFA. Finally, the various additional tests that were conducted to ensure the robustness of the results will be presented followed by the findings from 2SLS regression.

Table 6-5: Logistic regression of the Investor Relations Award on corporate governance and control variables

		(A) IRAWARD					
	sign	**MODEL1**	**MODEL2**	**MODEL3**	**MODEL4**	**MODEL5**	**MODEL6**
		Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
ACQUALITYBR	+						**0.85****
							2.34
ACQUALITY	+					-0.026	
						-0.06	
ACSIZE	-			**-1.78***	**-2.211****		
				-1.88	***-2.08***		
ACIND	+			0.069	0.064		
				0.12	*0.10*		
ACEXP	+			-0.69	-1.038		
				-1.02	*-1.46*		
ACMEET	+			**3.85*****	**3.277****		
				2.93	***2.54***		
ACMULT	-/+			**0.45*****	**0.36****	**0.312****	**0.29***
				2.85	***2.15***	***2.00***	***1.85***
CHAIRNONEXE	+		0.459		0.29	0.47	0.413
			0.93		*0.57*	*0.95*	*0.82*
CHAIRMULT	-/+		**0.27*****		**0.248****	**0.24****	**0.25****
			2.74		***2.33***	***2.36***	***2.36***
CHAIRTEN	-/+		-0.059		**-0.08****	-0.06	-0.043
			-1.62		***-2.18***	*-1.65*	*-1.19*
BODSIZE	_		**0.152***		**0.153***	**0.153***	0.097
			1.78		***1.68***	***1.75***	*1.07*
BODIND	+		-0.0002		0.00	-0.001	-0.007
			-0.01		*0.05*	*-0.05*	*-0.41*
BODMEET	+		**0.133****		0.087	**0.119***	0.092
			2.11		*1.26*	***1.85***	*1.41*
SUBSHR	-/+		-0.018	-0.016	-0.006	-0.015	-0.017
			-1.09	*-0.91*	*-0.31*	*-0.92*	*-0.98*
NOSUBSHR	-/+		0.108	0.09	0.06	0.09	0.112
			1.05	*0.86*	*0.56*	*0.90*	*1.03*
LNMCAP	**+**	**0.5*****	**0.51*****	**0.70*****	**0.73*****	**0.54*****	**0.52****
		3.15	***2.63***	***3.71***	***3.26***	***2.67***	***2.53***
EARNVAR	**+**	**-0.42*****	**-0.53*****	**-0.47*****	**-0.57*****	**-0.53*****	**-0.5*****
		-2.93	***-3.35***	***-3.04***	***-3.33***	***-3.31***	***-3.42***
ROA	+	-0.22	-0.01	-0.037	-0.03	-0.013	-0.02
		-0.88	*-0.50*	*-1.36*	*-1.09*	*-0.47*	*-0.72*
DTA	-/+	-0.017	-0.015	-0.012	-0.013	-0.013	-0.01
		-1.61	*-1.36*	*-1.07*	*-1.05*	*-1.08*	*-1.19*
BIG4	**+**	**-2.04****	-1.73	**-2.82****	**-2.46***	-1.58	-1.72
		-2.08	*-1.55*	***-2.30***	***-1.85***	*-1.34*	**-1.54**
ANALYST	**+**	**0.2*****	**0.17*****	**0.21*****	**0.19*****	**0.17*****	**0.2*****

		5.76	***4.41***	***5.19***	***4.47***	***4.32***	***4.38***
DUMMY2007	-/+	-0.05	-0.409	-0.209	-0.48	-0.404	-0.39
		-0.12	*-0.82*	*-0.43*	*-0.92*	*-0.8*	*-0.77*
DUMMY2006	-/+	-0.07	0.09	-0.14	0.004	0.122	0.137
		-0.16	*0.19*	*-0.29*	*0.01*	*0.25*	*0.27*
DUMMY2005	-/+	-0.07	0.06	-0.122	-0.04	0.04	0.061
		-0.17	*0.14*	*-0.26*	*-0.08*	*0.09*	*0.13*
TECHNOLOGY	-/+	0.611	0.79	0.89	0.67	0.82	0.92
		1.24	*1.43*	*1.54*	*1.10*	*1.37*	*1.56*
CONSGOODS	-/+	-0.223	-0.27	-0.06	-0.22	-0.26	-0.26
		-0.38	*-0.43*	*-0.1*	*-0.32*	*-0.40*	*-0.41*
CONSERVICES	**-/+**	**-0.82****	**-0.845***	**-1.14****	**-1.29****	**-0.964***	**-0.75**
		-1.97	***-1.72***	***-2.31***	***-2.36***	***-1.89***	***-1.48***
TELECOM	-/+	-1.913	-1.7	-1.5	-2.8	-1.7	-1.46
		-1.08	*-0.95*	*-0.69*	*-1.29*	*-0.90*	*-0.77*
OIL AND GAS	-/+	-0.714	**-1.4****	**-0.96**	**-1.68****	**-1.46****	**-1.28***
		-1.18	***-2.05***	***-1.50***	***-2.29***	***-2.12***	***-1.80***
HEALTHCARE	-/+	0.313	0.636	0.104	0.38	0.217	0.19
		0.36	*0.66*	*0.11*	*0.34*	*0.22*	*0.20*
UTILITIES	-/+	-1.008	**-2****	**-1.225**	**-2.1****	**-1.9****	**-2.01****
		-1.25	***-2.23***	***-1.45***	***-2.27***	***-2.21***	***-2.25***
_cons		**-6.82*****	**-10.1*****	**-11.5*****	**-13.1*****	**-11.3*****	**-10*****
		-2.85	***-3.29***	***-3.65***	***-3.76***	***-3.48***	***-3.14***
N		290	290	290	290	290	290
LR chi2 (29)		121.86	148.43	150.31	168.82	152.52	158.09
PROB>chi2		0.00	0.000	0.00	0.000	0.00	0.00
Pseudo R-SQUARED		0.3031	0.3692	0.3739	0.4199	0.3794	0.3932

Table 6-6: Poisson regression of disclosure quality on corporate governance and control variables

		(A) FLSCORE					
	sign	**MODEL 1**	**MODEL 2**	**MODEL 3**	**MODEL 4**	**MODEL 5**	**MODEL 6**
		Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
ACQUALITYBR	+						**0.16**** ***2.44***
ACQUALITY	+					**0.213**** ***2.47***	
ACSIZE	-			-0.04 *-0.28*	-0.115 *-0.73*		
ACIND	+			**0.21*** ***1.69***	0.194 *1.56*		
ACEXP	+			**0.26**** ***2.20***	**0.233**** ***2.00***		
ACMEET	+			**0.34***** ***3.01***	**0.223**** ***2.11***		
ACMULT	-/+			0.028 *1.35*	0.01 *0.50*	0.014 *0.67*	0.013 *0.62*
CHAIRNONEXE	+		0.089 *1.19*		0.099 *1.28*	0.105 *1.35*	0.08 *1.11*
CHAIRMULT	-/+		**0.05***** ***2.89***		**0.05***** ***2.65***	**0.05***** ***2.62***	**0.1***** ***2.72***
CHAIRTEN	-/+		-0.005 *-0.98*		-0.003 *-0.66*	-0.004 *-0.65*	-0.003 *-0.58*
BODSIZE	_		**0.05***** ***2.06***		**0.04***** ***2.63***	**0.05***** ***2.79***	**0.04**** ***2.53***
BODIND	+		**0.007**** ***2.17***		**0.006*** ***1.85***	**0.005*** ***1.82***	**0.006*** ***1.84***
BODMEET	+		**0.02**** ***2.57***		**0.02***** ***2.75***	**0.02***** ***2.96***	**0.02**** ***2.14***
SUBSHR	-/+		-0.002 *-0.55*	-0.003 *-0.59*	-0.002 *-0.48*	-0.002 *-0.54*	-0.002 *-0.52*
NOSUBSHR	-/+		0.009 *0.43*	0.013 *0.53*	0.007 *0.33*	0.009 *0.41*	0.013 *0.55*
LNMCAP	**+**	**0.06***** ***2.15***	0.009 *0.32*	**0.06**** ***2.25***	0.011 *0.41*	0.006 *0.21*	0.003 *0.11*
EARNVAR	**+**	0.018 *1.01*	0.0004 *0.02*	0.012 *0.67*	-0.001 *-0.04*	-0.002 *-0.11*	-0.005 *-0.26*
ROA	+	-0.006 *-1.22*	-0.003 *-0.58*	-0.006 *-1.07*	-0.003 *-0.56*	-0.002 *-0.46*	-0.003 *-0.69*
DTA	-/+	-0.001 *-0.52*	-0.0004 *-0.18*	-0.001 *-0.38*	-0.0003 *-0.16*	-0.001 *-0.23*	-0.001 *-0.21*
BIG4	**+**	**0.53***** ***2.76***	**0.48**** ***2.37***	**0.44**** ***2.36***	**0.44**** ***2.29***	**0.387*** ***1.76***	**0.45**** ***2.14***
ANALYST	**+**	**0.02*****	**0.02*****	**0.02*****	**0.01*****	**0.02*****	**0.02*****

		4.38	***2.78***	***3.50***	***2.74***	***2.79***	***2.91***
DUMMY2007	-/+	**0.199****	**0.144***	**0.157***	0.113	0.121	0.132
		2.26	***1.72***	***1.77***	*1.13*	*1.44*	*1.58*
DUMMY2006	-/+	**0.211****	**0.24*****	**0.207****	**0.23*****	**0.23*****	**0.2*****
		2.28	***2.86***	***2.29***	***2.68***	***2.68***	***2.67***
DUMMY2005	-/+	-0.06	-0.05	-0.063	-0.04	-0.042	-0.058
		-0.78	*-0.53*	*-0.73*	*-0.50*	*-0.51*	*-0.7*
TECHNOLOGY	-/+	**-0.29*****	**-0.31*****	**-0.2***	**-0.25****	**-0.25****	**-0.3*****
		-2.84	***-2.71***	***-1.77***	***-2.11***	***-2.08***	***-2.64***
CONSGOODS	-/+	-0.154	-0.175	-0.155	-0.175	-0.178	-0.167
		-1.18	*-1.45*	*-1.22*	*-1.45*	*-1.49*	*-1.42*
CONSERVICES	**-/+**	**-0.25****	**-0.27*****	**-0.176***	**-0.22****	**-0.22****	**-0.3*****
		-2.41	***-3.07***	***-1.66***	***-2.41***	***-2.4***	***-2.69***
TELECOM	-/+	**-0.17**	**-0.07**	**-0.05**	**-0.05**	**-0.03**	**-0.05**
		-0.71	***-0.25***	***-0.23***	***-0.19***	***-0.12***	***-0.19***
OIL AND GAS	-/+	**0.24*****	**0.144**	**0.28*****	**0.168***	**0.179***	**0.172***
		2.72	***1.50***	***3.09***	***1.77***	***1.95***	***1.86***
HEALTHCARE	-/+	**0.224***	**0.25***	**0.29****	**0.3****	**0.28****	**0.234***
		1.69	***1.8***	***2.18***	***2.12***	***1.97***	***1.66***
UTILITIES	-/+	**0.29*****	**0.142**	**0.26*****	**0.127**	**0.133**	**0.152**
		2.85	***1.33***	***2.64***	***1.21***	***1.25***	***1.38***
_cons		**2.83*****	**2.53*****	**2.18*****	**2.10*****	**2.53*****	**2.7*****
		6.71	***5.63***	***4.37***	***4.75***	***5.54***	***5.84***
N		290	290	290	290	290	290
LR chi2 (29)		175.36	230.08	260.06	298.90	245.36	240.91
PROB>chi2		0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R-SQUARED		0.327	0.3860	0.3566	0.4019	0.3967	0.3960

Table 6-7: Tobit regression of disclosure quality on corporate governance and control variables

		(A) AFA					
	sign	**MODEL1**	**MODEL2**	**MODEL3**	**MODEL4**	**MODEL5**	**MODEL6**
		Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
ACQUALITYBR	+						-0.23 *-0.97*
ACQUALITY	+					-0.36 *-1.47*	
ACSIZE	-			-0.26 *-0.55*	-0.003 *-0.01*		
ACIND	+			-0.09 *-0.23*	0.03 *0.08*		
ACEXP	+			**-0.69***** ***-2.65***	**-0.76**** ***-2.25***		
ACMEET	+			-0.407 *-1.05*	-0.35 *-0.94*		
ACMULT	-/+			**0.172**** ***2.18***	**0.168**** ***2.15***	**0.167**** ***2.15***	**0.172**** ***2.19***
CHAIRNONEXE	+		0.23 *0.66*		0.207 *0.59*	0.207 *0.59*	0.263 *0.75*
CHAIRMULT	-/+		0.08 *1.51*		0.08 *1.35*	0.08 *1.39*	0.078 *1.39*
CHAIRTEN	-/+		0.01 *0.81*		0.004 *0.29*	0.01 *0.66*	0.009 *0.62*
BODSIZE	_		-0.06 *-1.26*		-0.048 *-0.99*	-0.055 *-1.12*	-0.05 *-1.07*
BODIND	+		**-0.03*** ***-1.66***		**-0.027*** ***-1.75***	-0.03 *-1.62*	-0.03 *-1.65*
BODMEET	+		0.001 *0.02*		-0.003 *-0.08*	-0.006 *-0.14*	0.002 *0.05*
SUBSHR	-/+		0.003 *0.35*	0.01 *0.84*	0.005 *0.65*	0.004 *0.51*	0.004 *0.51*
NOSUBSHR	-/+		0.013 *0.24*	0.005 *0.09*	0.017 *0.31*	0.016 *0.30*	0.009 *0.18*
LNMCAP	**+**	**0.31***** ***2.87***	**0.42***** ***3.04***	**0.35***** ***2.92***	**0.44***** ***2.96***	**0.46***** ***3.18***	**0.47***** ***3.15***
EARNVAR	**+**	-0.07 *-0.72*	-0.05 *-0.58*	-0.056 *-0.58*	-0.04 *-0.41*	-0.04 *-0.5*	-0.039 *-0.44*
ROA	+	-0.002 *-0.17*	-0.005 *-0.38*	-0.007 *-0.54*	-0.008 *-0.59*	-0.007 *-0.49*	-0.005 *-0.37*
DTA	-/+	**-0.02**** ***-2.17***	**-0.02**** ***-2.26***	**-0.02**** ***-2.04***	**-0.02**** ***-2.09***	**-0.02**** ***-2.08***	**-0.02**** ***-2.17***
BIG4	**+**	0.05 *0.09*	0.577 *0.88*	0.06 *0.10*	0.44 *0.65*	0.75 *1.1*	0.66 *0.98*
ANALYST	**+**	0.02 *1.23*	0.028 *1.22*	0.034 *1.40*	0.03 *1.31*	0.03 *1.13*	0.023 *1.03*
DUMMY2007	-/+	0.48 *1.51*	0.358 *1.23*	0.439 *1.44*	0.36 *1.20*	0.35 *1.20*	0.333 *1.16*
DUMMY2006	-/+	0.337	0.26	0.296	0.27	0.27	0.281

		1.11	*0.88*	*1.01*	*0.9*	*0.94*	*0.97*
DUMMY2005	-/+	-0.16	-0.12	-0.226	-0.157	-0.17	-0.13
		-0.42	*-0.31*	*-0.59*	*-0.42*	*-0.46*	*-0.35*
TECHNOLOGY	-/+	0.197	0.194	-0.106	-0.3	0.056	0.165
		0.64	*0.61*	*-0.36*	*-0.1*	*0.19*	*0.52*
CONSUMERGOODS	-/+	-0.43	-0.38	-0.48	-0.44	-0.45	-0.43
		-0.82	*-0.84*	*-0.92*	*-0.93*	*-0.97*	*-0.95*
CONSUMERSERVICES	**-/+**	0.19	0.178	-0.089	-0.019	0.018	0.07
		0.89	*0.77*	*-0.39*	*-0.08*	*0.08*	*0.30*
TELECOMMUNICATION	-/+	-6.85*	**-0.69****	**-7.27****	**-7.13****	**-7.09****	**-7.03****
		-1.84	***-1.99***	***-2.03***	***-2.15***	***-2.11***	***-2.09***
OIL AND GAS	-/+	-0.47	-0.52	-0.56	-0.56	-0.62	-0.59
		-0.96	*-1.15*	*-1.12*	*-1.25*	*-1.37*	*-1.29*
HEALTHCARE	-/+	-0.66	-0.71	**-1.05***	-0.97	-0.86	-0.75
		-1.00	*-1.10*	***-1.69***	*-1.65*	*-1.33*	*-1.16*
UTILITIES	-/+	0.27	0.179	0.23	0.178	0.156	0.132
		0.55	*0.35*	*0.47*	*0.34*	*0.30*	*0.26*
_cons		-5.61	**-6.23*****	**-5.483**	**-5.78*****	**-7.05*****	**-7.32*****
		-3.69	***-3.37***	***-3.06***	***-2.83***	***-3.50***	***-3.60***
N		254	254	254	254	254	254
LR chi2 (29)		1.82	1.80	1.71	1.64	1.73	1.84
PROB>chi2		0.0289	0.015	0.0253	0.025	0.019	0.01
Pseudo R-SQUARED		0.0628	0.0725	0.0709	0.0797	0.0770	0.0763

Logistic regressions were carried out on IRAWARD and corporate governance variables, the results are reported in Table 6-5. Model One (refer to Table 6-5) shows that the control variables account for the receipt of the Investor Relations Magazine Award (IRAWARD) up to 30.31%. Four control variables, BIG4 ($p<0.05$), EARNVAR ($p<0.01$), ANALYST ($p<0.01$) and LMCAP ($p<0.01$), have a significant association with the receipt of IRAWARD, the latter two variables being positive, while the former two are negative. PROFIT and DTA do not have a significant association with the receipt of IRAWARD. The positive association between analyst following and quality of disclosure is consistent with the findings of Lang and Lundholm (1996) and Vanstraelen et al. (2003).

Regression results for Model Two show that when board of director characteristics are included the R^2 increases for the receipt of IRAWARD to 36.92%. In addition, the results also show that additional directorships held by the board chair (CHAIRMULT, $p<0.01$) have a positive significant association with IRAWARD. This suggests that firms with a higher number of additional directorships held by their board chair are associated with the receipt of IRAWARD. Furthermore, other board characteristic variables (e.g. board meeting (BODMEET, $p<0.05$) and board size (BODSIZE, $p<0.1$)) are also found to be positively associated with the receipt of IRAWARD.

In relation to Model Three, when audit committee related variables are added into the model, together with the control variables, the R^2 (for Model Three) increases to 37.39%. This is slightly higher than the result for Model Two, in which R^2 was 36.92%; hence

suggesting that audit committee characteristics have a stronger effect on the receipt of IRAWARD when compared with the effect of board characteristics. ACIND, ACMEET and ACMULT have positive associations with the receipt of IRAWARD, although only the latter two variables are significant at $p<0.01$ and $p<0.01$ respectively. Contrastingly, ACSIZE ($p<0.1$) is negatively associated with IRAWARD. This finding is similar to that of Kent and Stewart (2008), who reported a negative link between audit committee size and disclosure. When both board characteristics and audit committee characteristics are included, in Model Four, the R^2 increases to 41.99%. This is relatively higher than the result from Lim et al. (2007), whose highest reported R^2 is merely 35%. Reflecting the findings from Models Two and Three, ACSIZE, ACMEET, ACMULT, CHAIRMULT, CHAIRTEN and BODSIZE are statistically significant in respect to their influence on the receipt of IRAWARD. Nonetheless, the significance of BODMEET in Model Two disappears after controlling for audit committee characteristics in Model Four. This suggests that BODMEET becomes less important in the presence of monitoring by an audit committee.

Model Five also provides support for the association between audit committee characteristics and disclosure. Specifically, there is a positive association between the receipt of IRAWARD and ACQUALITY, with an R^2 of 37.94%.[125] When ACQUALITY[126] is

[125] Given that all other audit committee variables (except ACMULT) are regulator driven, the present study chooses not to include ACMULT in defining ACQUALITY and ACQUALITYBR. The UK Corporate Governance Code is silent with regard to the issue of audit committee multiple directorship. Moreover, the current study is uncertain over the direction of relationship. Competing theories explaining the effects of multiple directorships are widely acknowledged. In brief, agency theory favours lower numbers of additional directorships in order to enable directors to spend longer hours and to put more effort into one company, while labour market theory encourages multiple directorships as they can improve a director's levels of knowledge and competency

replaced with ACQUALITYBR, Model Six reports that ACQUALITYBR has a positive and significant association with the receipt of IRAWARD (coefficient of 0.745; p<0.01). Hence, Models Four, Five and Six document that audit committee characteristics play complementary roles to board of director characteristics in respect to the receipt of IRAWARD.

In relation to the second proxy for disclosure quality, FLSCORE, the Poisson regression was carried out. This follows Cerbioni and Parbonetti's (2007) approach, in light of the fact that FLSCORE is a count integer.[127] The multivariate analysis of the relationships between all control variables and FLSCORE (Model One, Table 6-6) shows that most of the control variables are significantly related to FLSCORE (R^2 is 32.07%). ANALYST, LMCAP and BIG4 are all positively associated with FLSCORE at p<0.01, p<0.01 and p<0.01 respectively. This implies that monitoring by external governance mechanisms, including financial analysts and auditors, is crucial in improving disclosure quality. Nevertheless, the models reveal that DTA and EARNVAR are insignificant in relation to disclosure quality. Both LMCAP and BIG4 have a

(Zheng, 2008). Having said this, the present study is in agreement with Brickley and Zimmerman (2010) who highlight that researchers so far have not been knowledgeable enough or have failed to define "good" or "bad" corporate governance practice (i.e., ACMULT) when developing governance indexes. In this regard, we are concerned that the inclusion of ACMULT may lead to a wrongful classification, given that all of the other audit committee measures are based on the recommended benchmark in the UK Corporate Governance Code. The present study exercises caution by not incorporating ACMULT in the composite ACQUALITY & ACQUALITYBR measures.

[126] The present study follows Zaman et al. (2011) in constructing measures of audit committee effectiveness. The composite measures for audit committee quality are relevant for the current study, given that they are based on the recommended benchmark (i.e., the Smith Report 2003) for corporate governance practices in the UK.

[127] Poisson estimation using pooled data was conducted in STATA using the command: *poisson dependent variable independent variables control variables, robust.* "*Robust*" is included in the command to correct for heteroskedasticity in the dataset.

positive significant association with FLSCORE, indicating that firms which are large and which are audited by a Big4 auditor tend to disclose more forward looking information when compared to their counterparts.

When variables related to board of director characteristics are added to the control variables in Model Two, the present study notes that the R^2 increases to 38.60%, as compared with 32.7% in Model One. Firms with a high FLSCORE tend to have larger boards, more independent directors on their boards, have more frequent board meetings and have boards that are chaired by directors with high number of additional directorships. These characteristics, therefore, appear to have additional effects on disclosure quality. Specifically, BODMEET ($p<0.05$), BODSIZE ($p<0.01$), BODIND ($p<0.05$) and additional directorships being held by the board chair (CHAIRMULT, $p<0.01$) appear to have positive associations with forward looking disclosure.

In Model Three, board characteristics are replaced with audit committee characteristics. The R^2 in Model Three is 35.66%, which is slightly higher than the R^2 in Model One (R2 = 32.7%). This suggests that audit committee characteristics have an incremental effect on FLSCORE. In particular, ACIND (coef = 0.21, $p<0.1$), ACEXP (coef = 0.26, $p<0.05$) and ACMEET (coef = 0.34, $p<0.01$) have significant positive associations with FLSCORE. These results imply that firms acting in accordance with the recommended benchmark set by regulators in relation to audit committee characteristics provide better FLSCORE than their counterparts. However, ACMULT and ACSIZE are statistically insignificant in the model. When both audit committee

and board characteristics are combined in Model Four, regression analysis reveals that audit committee characteristics make an incremental contribution to board characteristics in enhancing FLSCORE. The R^2 increases to 40.19% and reflects the predictive ability of board and audit committee characteristics in respect to FLSCORE. This can be compared with the lower R^2 of 32.7% obtained in Model One. In Model Four, significant positive relationships are recorded for ACEXP ($p<0.05$), ACMEET ($p<0.05$), CHAIRMULT ($p<0.01$), BODSIZE ($p<0.01$), BODIND ($p<0.1$) and BODMEET ($p<0.01$) with respect to FLSCORE.

The tests for FLSCORE and audit committee effectiveness are carried out in Models Five and Six. The regression analysis reports that ACQUALITY ($p<0.5$) (refer to Model Five) and ACQUALITYBR ($p<0.05$) (refer to Model 6) make a significant positive contribution to FLSCORE. In other words, compliance with the recommended benchmarks for audit committee characteristics, drawn from the Smith Report (2003), has significant incremental effects alongside the characteristics of the board of directors in improving disclosure quality. The R^2s for Models Five and Six are 39.67% and 39.60% respectively. This study also found that substantial shareholding (SUBSOWN) in Models Two, Three, Four, Five and Six consistently reported negative relationships with FLSCORE. Taken together, the findings indicate that audit committees roles in improving FLSCORE is stronger, especially when the monitoring by substantial shareholders is weak.

With regard to the third proxy for disclosure quality, which is AFA, Models One to Six were re-run using the Tobit estimation and the result is presented in Table 6-7. In Model One,

LMCAP reports a positive link with AFA at p<0.01 and DTA reports a negative link with AFA at p<0.05, with an R^2 of 6.28%. This indicates that firm size and leverage are important determinants of AFA. When board characteristics are included in the regression (refer to Model Two), contradictory to the hypothesis, BODIND has a negative influence on AFA (coef = -0.03, p<0.1). This corroborates the findings of Eng and Mak's (2003) Singaporean study. The R^2 slightly increases from 6.28% in Model One (when only corporate characteristics are included in the model) to 7.25% in Model Two (when board characteristics are added to the regression). Other board characteristics, however, are statistically insignificant. In Model Three, where audit committee characteristics are embedded into the regression, the result reveals that firms with higher ACEXP tend to have lower AFA (p<0.01), hence suggesting that this variable has adverse effects. This finding contradicts the hypothesis and suggests that firms with lower AFA have a greater propensity to comply with the recommended benchmark for audit committee financial expertise. Another findings reveal that ACMULT has a significant positive relationship with AFA at p<0.05. This supports labour theory, which holds that higher numbers of multiple directorships are favourable because they increase manager's competency and knowledge and, thereby, improve disclosure quality. The R^2 is 7.09%, which is slightly lower than that for Model Two (which controls for board characteristics), thus signalling that boards have a stronger monitoring effect than audit committees in respect to enhancing analyst forecast accuracy.

In Model Four, both audit committee characteristics and board characteristics are combined in one model, together with the control variables. Significant results for BODIND (in Model

Two) and ACEXP and ACMULT (in Model Three) are still maintained. The results for Model Four reflect that audit committees have a small incremental effect together with boards of directors in enhancing AFA; although, the R^2 in Model Four is only slightly higher than that in Model Two, increasing from 7.25% to 7.97%. It is also important to note that most audit committee characteristics in Model Four have negative coefficients (e.g. ACSIZE, ACEXP and ACMEET), suggesting that there is a substitutive relationship. In Models Five and Six, where individual audit committee characteristics are replaced with composite measures of audit committee effectiveness, ACQUALITY and ACQUALITYBR, results indicate that ACQUALITY and ACQUALITYBR, as well as all board characteristics, are statistically insignificant in their effect on AFA. Consistent insignificant relationships between audit committee strength and AFA, as reflected in Models Five and 6, demonstrate that compliance with the Smith Report (2003) recommendations on audit committee characteristics is effectively substitutive to board of directors characteristics in increasing a firm's AFA. The only variable that influences AFA, according to Models Five and 6, is ACMULT, with a coefficient of 0.167 at $p<0.05$ and a coefficient of 0.172, at $p<0.05$, respectively.

The present study recognises that AFA as a proxy probably does not fully capture disclosure quality, as it reports consistent insignificant and conflicting findings as well as a constantly lower R^2 than other proxies for disclosure quality (i.e., IRAWARD, FLSCORE). [128] There could be several reasons for these findings. Firstly, AFA is probably not a direct measure of

[128] This type of limitation is not uncommon. Prior research recognizes the impossibility of defining and constructing a perfect proxy for disclosure quality (e.g. Cerbioni and Parbonetti, 2007, Debreceny and Rahman, 2005; Beretta and Bozzolan, 2008; Cooke and Wallace, 1989).

disclosure quality, and it may be located in between of a firms' disclosure and analysts, hence, it is not a very good proxy for a firm's overall disclosure quality. Secondly, analyst forecasts are subject to several controversial issues: for example (i) analysts tend to follow their peers when they make forecasts (Hong et al., 2000; Welch, 2000) and (ii) analysts are not always viewed as an independent external party, given that they try to maintain good relationships with management and try not to disappoint them by providing negative recommendations (Agrawal and Chen, 2006; Francis and Soffer, 1997; Dechow et al., 2000). The credibility of a forecast issued by an analyst might, therefore, be questionable. AFA could be the outcome of clandestine collaboration between analysts and management and this could lead to conflicting findings. [129]

6.4.1 Sensitivity analysis[130]

Several sensitivity analyses were performed to check the robustness of the findings. Regressions were also re-run using increased and reduced samples, different measurements for corporate governance and alternative estimations. For the sake of brevity, full results for the sensitivity analyses are not reported, but are available upon request.

[129] Given that AFA tends to offer perplexing results, only the additional tests which were deemed to be beneficial will be performed in the sensitivity analysis.

[130] According to Sadka (2011), the global financial crisis in 2008-2009 that lead to the collapse of several financial institutions in the UK lead to an increasing interest in the link between disclosure transparency and stock liquidity. The present study considers that the sample (for the year 2007) may be partially affected by the onset of the global financial crisis. In light of this, the firm data for the most recent years (i.e., 2007) was removed and the main model was re-run. Findings show that all results are similar except that the level of significance is slightly affected. It is, therefore, assumed that the primary results are not affected by the financial crisis issue and the slight decrease in the level of significance is due to the smaller size of sample that was used in the sensitivity test. The primary test is based on larger sample.

6.4.1.1 Using increased samples

The usable final sample for Project Two is actually 340 firms (170 match-paired). [131] This figure is slightly different from Projects One and Three, in which the final sample comprised 290 firms (145 match-paired) because they employed earnings management data, where industries with fewer than six firms were excluded. [132] In order to maintain consistency and to enable a fair comparison between Projects One, Two and Three, the statistical analyses in the current project were also conducted using 290 firms. Therefore, as an additional test, Models Four, Five and Six in Tables 6-4 and 6-5 were re-run using 340 firms. The results show that all findings are qualitatively similar to the primary results reported in Tables 6-4 and 6-5.

6.4.1.2 Alternative estimations and definitions[133]

As an additional test, this study also re-ran Model Four using different estimations. Using the probit estimation (for IRAWARD), the negative binomial regression (for FLSCORE) and the truncated regression (for AFA), the findings are largely similar to those presented in Model

[131] Refer to Chapter Three for a detailed breakdown of the sample.

[132] At least six firms in each industry are required in order to obtain valid coefficient parameters in the earnings management calculations, such as the Modified Jones (1995) model. Detailed discussion with regard to earnings management measurement and calculation is available in the Chapter 3.

[133] There are several reason why dummy variables are used to measure audit committee characteristics in the primary analysis: (i) dummies for most of the corporate governance variables, like ACSIZE, ACMEET, ACEXP and ACIND, are basically regulator driven, based on the recommendations in the Smith Report (2003); (ii) the transformation of data to dummies solves the issue of outliers; (iii) the use of dummies does not change the results, as the additional tests using alternative measures for corporate governance reveal that results for DQ, CG and control variables are qualitatively unchanged, highlighting that the results are not derived by specific measures for CG and (iii) the contribution made by this project will be more apparent when the measurements are derived from specific recommendations in the UK Corporate Governance Code, hence conclusions can be made in light of the UK regulatory benchmarks.

Five. Overall we conclude that our results are primarily consistent and not derived from specific estimations. [134]

Governance variables were also redefined using several alternative measures. Specifically, ACSIZE, ACIND, ACMEET, ACEXP, BODMEET, BODIND and BODSIZE were redefined as $ACSIZE^{A}$, $ACIND^{A}$, $ACMEET^{A}$, $ACEXP^{A}$, $BODMEET^{A}$, $BODIND^{A}$ and $BODSIZE^{A}$.

When all redefined variables are included in Model Four in Table 6-5 (where disclosure quality is measured using IRAWARD), it is observed that $ACEXP^{A}$ offers substitutive effects to IRAWARD, suggesting that receipts of IRAWARD tend to have lower percentages of audit committee members with financial expertise. Other results are similar. With regard to FLSCORE, when redefined variables (as mentioned above) are used in the model, all findings are similar except that $BODIND^{A}$ and $ACEXP^{A}$ become insignificant in relation to FLSCORE. These findings suggest that compliance with the recommended benchmark on audit committee expertise (measured using ACEXP) increases FLSCORE, while firms with a high percentage of independent board members (BODIND) have higher FLSCORE than those that merely comply with the recommendation for equal proportions of independent and dependent directors on the board (excluding the chairman) (i.e., $BODIND^{A}$). In relation to the third proxy for disclosure quality, AFA, the use of redefined measures for audit committee

[134] This study winsorized all continuous variables at 1%, top and bottom, in order to reduce the effects of extreme values in our models, as in Cornett et al. (2008). As a sensitivity analysis, the regression was re-run incorporating extreme values in the models and it was found that the results are robust to the treatment of outliers in our dataset.

and board characteristics reveals results that are similar to those reported in Model Four of Table 6-7.

6.4.1.3 Reduced sample tests.

6.4.1.3.1 Large firms vs. small firms

Several additional tests are carried out using a reduced sample. [135] Linck et al. (2008) find that board structure differs according to a firm's size. The sample is, therefore, split into large and small firms based on the median of size and Model Four of Tables 6-5, 6-6 and 6-7. In small firms, when IRAWARD is used as a proxy for disclosure quality, ACEXP and ACSIZE report significant negative results at $p<0.1$ and $p<0.05$ respectively. This implies that ACEXP and ACSIZE have substitutive monitoring effects in small firms. In relation to FLSCORE, contrary to the primary findings in Model Four of Table 6-6, SUBSHR shows a significant negative relationship with FLSCORE at $p<0.01$, suggesting a substitutive relationship. Moreover, ACMEET has a statistically insignificant controlling effect on FLSCORE, suggesting that ACMEET is not relevant to FLSCORE in small firms. Concerning AFA, results indicate that ACEXP is significantly negatively related to AFA at $p<0.05$ and CHAIRMULT is significantly positively related to AFA at $p<0.1$. This signals that AFA increases with CHAIRMULT and

[135] The sample may be affected by the global financial crisis. Firms in the year 2008 (which appeared to be the year of the commencement of the crisis) were excluded and Models Four, Five and Six of the primary model in Table 10 were re-run. The results show a slight reduction in the level of significance. Using forward looking information (FLSCORE) as a dependent variable, it is found that only ACMEET (coef = 0.25; $p<0.05$) is significant in Model Four, while Models Five and Six reveal that ACQUALITY (coef = 0.177) and ACQUALITYBR (coef = 0.167) are significant at $p<0.1$ and $p<0.05$ respectively. When the receivers of the Investor Relations Award (IRAWARD) are used in Model Four, it is found that the results for ACSIZE (coef = -2.249; $p<0.1$) and ACMEET (coef = 4.53; $p<0.05$) are significant. Models Five and Six show that ACQUALITY is insignificant, while ACQUALITYBR (coef = 0.71) shows a significant positive association with IRAWARD at $p<0.1$. The minor changes in the results are probably due to the reduced size of the sample used in the sensitivity analysis, while our primary analysis is based on broader set of samples.

decreases with ACEXP in small firms. This finding corroborates that of Kent and Stewart's (2008) Australian study, which reported a negative link between audit committee financial literacy and disclosure on IFRS transition.

With regard to large firms, when IRAWARD is used as a proxy for disclosure quality, CHAIRNONEXE shows a positive significant association with IRAWARD at $p<0.05$. When IRAWARD is replaced with FLSCORE, poisson regression shows that firms with high FLSCORE tend to have higher ACEXP, BODSIZE, BODIND and CHAIRMULT. Concerning AFA, the Tobit regression demonstrates that higher AFA is associated with higher ACSIZE, lower BODSIZE, smaller BODIND and shorter CHAIRTEN. Overall, the findings indicate that corporate governance reacts differently in large and small firms. [136]

6.4.1.3.2 *Winners vs. non-winners groups*

The sample is also divided into winner and non-winner of IRAWARD groups, and Model Four is re-run again using FLSCORE and AFA as proxies for disclosure quality. In the non-winners group, firms with high FLSCORE tend to have higher ACIND, BODSIZE, BODIND, BODMEET,

[136] There is potential for a non-linear association between SUBSHR, NOSUBSOWN and CHAIRTEN and disclosure quality, given that SUBSHR and CHAIRTEN tend to interact differently in large and small firms. The present study extends the analysis by introducing a quadratic form specification into the model in order to examine whether a concave relationship exists between the normal and squared variables. In the forward looking score (FLSCORE) model, it was found that a non-linear relationship does not exist between chairman tenure (BDCTEN) and FLSCORE as that the sign of relationship for both BDCTEN and BDCTENSQ is negative. In addition, it is noted that SUBSOWN (NOSUBSOWN) and SUBSOWNSQ (NOSUBSOWNSQ) report positive (negative) and negative (positive) relationships respectively, suggesting that a concave relationship exists between these two variables. Nevertheless, none of them are significant to the model, indicating that the concave relationships between SUBSOWN and NOSUBSOWN are merely weak in the context of UK firms. The same test was also performed using IRAWARD as a dependent variable and similar results were found.

CHAIRMULT, CHAIRNONEXE, and NOSUBSHR; while in the winners group, FLSCORE increases with higher ACMEET, BODSIZE, BODIND, and CHAIRMULT and with lower NOSUBSHR. The findings highlight that BODSIZE, BODIND and CHAIRMULT consistently have complementary monitoring effects in both the winners and non-winners group. However, NOSUBSHR has both complementary and substitutive effects in the different sample groups.

When AFA is used as a proxy for disclosure quality, none of the governance variables show a statistically significant influence on AFA in the winners group. However, in the non-winners group, CHAIRMULT and SUBSHR show significant positive relationships with AFA at $p<0.05$ and $p<0.05$ respectively, suggesting a complementary relationship. [137]

[137] The use of a non-unique sample for the years 2005-2008 may introduce bias into the findings, given that the "stickiness" issue of corporate governance data might become more apparent. Although the data is of non-panel type, (thus stickiness is not as serious as in the case of panel data), as a sensitivity analysis Models Three, Four and Five are re-run using unique firms per period (result not reported). Data is selected from the most recent year if a firm is a winner of the Investor Relations Award in more than one year. The result for unique samples per period is qualitatively similar to those for unique samples per year and only slight differences occur (e.g. the level of significance is slightly lower) when forward looking disclosure (FLSCORE) is used as dependent variable. When ACQUALITY and ACQUALITYBR are substituted for audit committee quality in Models Four and Five, the results are similar to the main findings. Both of them are highly significant at $p<0.01$ and $p<0.01$ respectively. Therefore, the significant relationships between audit committee characteristics and forward looking score (FLSCORE) are not derived from non-unique samples in our study. However, the results are slightly different when the receipt of the Investor Relation Award (IRAWARD) is employed as a dependent variable. Concerning the strength of audit committees, which is measured using ACQUALITY and ACQUALITYBR, there is a qualitatively similar result to our main findings in Models Four and Five, where ACQUALITY and ACQUALITYBR are positively related to IRAWARD and only the latter is significant at $p<0.05$.

6.5 Simultaneity between disclosure quality and board independence

Table 6-8: 2SLS regression

	Panel A DQ = IRAWARD		Panel B DQ= FLSCORE		Panel C DQ = AFA	
DEPENDENT VARIABLES	MODEL1 IRAWARD	MODEL2 BODIND	MODEL1 FLSCORE	MODEL2 BODIND	MODEL1 AFA	MODEL2 BODIND
Endogenous Variables						
DQ (IRAWARD)		0.829 *0.32*				
DQ (FLSCORE)				**0.165***** ***6.59***		
DQ (AFA)						**-11.79***** ***-9.92***
BODIND	-0.008 *-0.14*		**0.063***** ***4.47***		**-0.323***** ***-3.92***	
Exogenous Variables						
ACSIZE	**-2.22**** ***-2.10***		0.001 *0.01*		-0.598 *-1.37*	
ACEXP	-1.03 *-1.45*		0.157 *1.16*		0.117 *0.30*	
ACMEET	**3.27**** ***2.54***		**0.181*** ***1.68***		-0.124 *-0.33*	
ACIND	0.06 *0.10*		0.182 *1.62*		-0.232 *-0.74*	
ACMULT	**0.36**** ***2.14***		**0.04**** ***2.03***		0.063 *1.01*	
BODMEET	0.08 *1.28*		**0.013*** ***1.86***		0.0012 *0.03*	
BODSIZE	0.147 *1.54*	**-0.532*** ***-1.96***	**0.076***** ***4.45***	**-1.413***** ***-5.38***	**-0.317***** ***-3.55***	**-1.005***** ***-3.98***
CHAIRNONEXE	0.297 *0.57*		0.07 *0.94*		0.295 *0.91*	
CHAIRTEN	**-0.08**** ***-2.20***		-0.001 *-0.15*		-0.0045 *-0.32*	
CHAIRMULT	**0.248**** ***2.33***		**0.026*** ***1.92***		0.079 *1.58*	
SUBSHR	-0.006 *-0.34*	-0.07 *-1.36*	0.0017 *0.53*	0.0049 *0.11*	**-0.17*** ***-1.81***	-0.057 *-1.33*
NOSUBSHR	-0.072 *0.58*	0.602 *1.60*	-0.02 *-1.45*	0.312 *0.90*	**-0.162**** ***2.60***	**0.70**** ***2.30***
PROFVAR		**1.809***** ***3.53***		**1.63***** ***3.35***		0.67 *1.56*
EARNVAR	**-0.56***** ***-3.02***		**-0.051**** ***-2.34***		**0.134**** ***2.17***	

LREM		**-1.63***		**-2.385****		0.67
		-1.78		*-2.56*		*0.94*
BODSHR		**-0.183*****		**-0.121*****		**-0.156*****
		-3.51		***-3.27***		***-3.38***
Firm-specific variables						
LMCAP	**0.76*****	**2.68*****	**-0.129*****	**1.613*****	**1.148*****	**7.43*****
	2.65	***4.23***	***-3.14***	***2.88***	***4.42***	***9.99***
ROA	-0.033		-0.005		0.007	
	-1.09		*-0.95*		*0.48*	
DTA	-0.01	0.018	-0.001	0.022	**-0.021*****	**-0.233*****
	-1.03	*0.46*	*-0.53*	*0.59*	***-2.87***	***-5.35***
MTBV		**-0.148***		**-0.123***		**-0.144***
		-1.83		***-1.68***		***-1.73***
ANALYST	**0.194*****		**0.012****		0.027	
	4.46		***2.43***		*1.38*	
BIG4	**-2.47***		**0.513****		0.678	
	-1.85		***2.26***		*0.89*	
YEAR 2007	-0.474	1.536	0.058	-1.58	0.441	**6.01*****
	-0.90	*0.87*	*0.81*	*-0.94*	*1.64*	***3.99***
YEAR 2006	0.006	0.286	**0.208*****	**-3.783****	0.202	**3.54****
	0.01	*1.67*	***3.08***	***-2.24***	*0.76*	***2.47***
YEAR 2005	-0.03	1.74	-0.1	2.18	0.603	-0.29
	-0.07	*1.01*	*-1.24*	*1.37*	*1.45*	*-0.21*
TECH	0.67	1.26	**-0.3008****	**3.76***	**0.761****	**5.12*****
	1.11	*0.61*	***-2.52***	***1.86***	***2.02***	***2.81***
TELECOM	-2.81	-4.469	0.09	-7.325	**-3.751***	**-80.54*****
	-1.27	*-0.73*	*0.27*	*-1.20*	***-1.88***	***-9.07***
CONSGOODS	-0.202	1.87	**-0.286*****	**4.68****	0.598	**-3.153***
	-0.29	*0.96*	***-2.73***	***2.58***	*1.27*	***-1.76***
CONSSERVICES	**-1.28****	1.97	**-0.336*****	**5.35*****	**0.832****	**4.54*****
	-2.36	*1.13*	**-3.92**	***3.30***	***2.21***	***3.17***
HEALTHCARE	0.394	-0.007	0.175	**-8.243*****	0.815	-3.769
	0.35	*-0.00*	*1.43*	***-3.32***	*1.09*	*-1.59*
UTILITIES	**-2.13****	-0.157	**0.231****	**-5.82****	0.827	3.63
	-2.27	*-0.06*	***2.46***	***-2.37***	*1.52*	*1.43*
OIL AND GAS	**-1.665****	2.173	0.0749	**-2.755***	0.179	**-3.38****
	-2.26	*1.11*	*0.83*	***-1.90***	*0.40*	***-2.05***
_cons	**-12.91*****	**43.36*****	0.833	**62.57*****	2.33	**-63.05*****
	-3.54	***3.41***	*1.48*	***11.98***	*0.95*	***-4.56***
N	290	290	290	290	254	254
F-stat/ LR Chi2	168.84	4.33	599.78	8.30	2.37	10.17
p	0.000	0.000	0.000	0.000	0.000	0.000
R-sq/ pseudo r2	0.4200	0.2041	0.4829	0.3130	0.1459	0.4386

Note: The figures in *italics* are the t-statistics, while figures in normal font are the coefficients.

Table 6-8 above, presents the results from the 2SLS regression after taking into account the potential for an endogenous relationship between disclosure quality and the percentage of independent directors. Model Four (in Tables 6-5, 6-6 and 6-7) consistently shows the highest R^2 when compared with other models, thus, in the 2SLS regression, Model Four is re-run together with the board independence equation. In 2SLS regression, it is expected that causality can run in both directions between disclosure quality and board independence, hence both of these variables are endogeneously determined by each other. Panel A in Table 6-8 reports the 2SLS regression for IRAWARD, while Panel B and C present the 2SLS regression for FLSCORE and AFA respectively.

With regard to Panel A, the IRAWARD equation shows that BODIND is not significantly related to IRAWARD, while the BODIND equation also reported no significant relationship between IRAWARD and BODIND. This implies that there is no simultaneous relationship between IRAWARD and BODIND. Nevertheless, when FLSCORE is employed as a proxy for disclosure quality, consistent with Grüning (2010), Panel B of Table 6-7 documents a significant positive relationship between BODIND and FLSCORE at $p<0.01$ (in the FLSCORE equation) and FLSCORE is also one of the important determinants for BODIND (in the BODIND equation) at $p<0.01$, signalling that there is a bi-directional relationship between FLSCORE and BODIND. A plausible explanation for this finding is that high BODIND is associated with high FLSCORE, and high FLSCORE also has the effect of increasing the percentage of BODIND in the company. Contrastingly, with regard to the third proxy for disclosure quality, AFA, Panel C reports significant simultaneous associations between

BODIND and AFA, but the direction of the relationship is negative. Specifically, in the AFA equation BODIND is found to be negatively related to AFA at $p<0.01$, while AFA is also negatively associated with BODIND in the BODIND equation at $p<0.01$. This finding indicates that a high percentage of BODIND in a firm will reduce AFA, while firms with low AFA tend to have a higher percentage of BODIND. However, these findings corroborate those of Lim et al. (2007) who document largely similar results. Specifically, they found that "not all types of voluntary disclosure are driven by board composition, but only those that represent key decisions made by the board. The disclosure of descriptive information or historical financial information is not related to board composition" (Lim et al., 2007, p. 557).

In relation to other variables in the disclosure quality equation, when IRAWARD is used as a proxy for disclosure quality in the 2SLS regression, Model One (refer to Panel A), the findings are largely similar to those from the logistic regression reported in Model Four (refer to Table 6-5). To be specific, ACSIZE (coef = -2.22, $p<0.05$), ACMEET (coef = 3.72, $p<0.05$), ACMULT (coef = 0.36, $p<0.05$), CHAIRTEN (coef = -0.08, $p<0.05$) CHAIRMULT (coef =0.248, $p<0.05$), LMCAP (coef=0.76, $p<0.01$) and EARNVAR (coef = -0.56, $p<0.01$) are significantly related to IRAWARD. Nonetheless, the weak significant positive link between BODSIZE ($p<0.1$) and IRAWARD (refer to Model Four, Table 6-5) disappeared in the 2SLS regression.

With regard to other determinants for FLSCORE, Model One of Table 6-8 also demonstrates that the findings of the 2SLS regressions are similar to those of the Poisson regression reported in Model Four of Table 6-6. However, ACEXP is no longer significant in the 2SLS

regression (it previously showed a significant positive association at $p<0.05$ in Model Four, Table 6-7) and ACMULT becomes positively significant in its influence on FLSCORE at $p<0.05$ (It previously showed an insignificant result in Model Four, Table 6-6). ACMEET, BODMEET, BODSIZE, BODIND and CHAIRMULT remain significant in this model as in the previous results for Model Four, Table 6-6.

Concerning the AFA equation (refer to Model One, Panel C), the findings reveal that SUBSHR (coef = -0.17, $p<0.1$), NOSUBSHR (coef = -0.162, $p<0.05$), BODIND (coef = -0.323, $p<0.01$) and BODSIZE (coef = -0.317, $p<0.01$) are significantly and negatively related to AFA. Contrary to the hypotheses, these findings indicate that AFA increases with lower numbers of substantial shareholders, less ownership by substantial shareholders, smaller board sizes and a smaller percentage of independent directors on the board. These imply that SUBSHR, NOSUBSHR, BODIND and BODSIZE provide substitutive effects to AFA. Negative relationships between BODIND and disclosure quality are also documented by Eng and Mak (2003) in their Singaporean study. The plausible explanation for this is that independent directors are less informed (compared to the internal directors) and largely dependent on information received from internal directors for the performance of their monitoring activities (check references). Moreover, large substantial shareholders and shareholdings might impair the ability of managers to convey credible information to the external party, given a firm's information system could be controlled by substantial shareholders (Boubaker and Labégorre, 2008). Another interesting finding is that ACMULT is not statistically significant in the 2SLS regression, although a positive relationship with AFA is previously reported at

p<0.05 (refer to Table 6-7); signalling that this finding is not robust after endogeneity is controlled for using 2SLS regression.

With respect to the BODIND equation (refer to Model Two of Panels A, B and C) the result reveals that disclosure quality is not the only predictor that determines BODIND. In particular, high BODIND is associated with lower BODSIZE (Panel A, p<0.1; Panel B, p<0.01; Panel C, p<0.01), lower LREM (Panel A, p<0.1; Panel B, p<0.05), smaller BODSHR (Panel A, p<0.01; Panel B, p<0.01 and Panel C, p<0.01) and higher PROFVAR (Panel A, p<0.01; Panel B, p<0.01). Firm-specific characteristics such as LMCAP (MTBV) consistently reported significant positive (negative) associations with BODIND in Model Two of Panels A, B and C, signalling that firms with a high percentage of independent directors tend to be larger in size and lower in market expected growth.

Concerning external governance mechanisms, Table 6-8 also demonstrates that IRAWARD and FLSCORE increase with higher ANALYST, signalling a complementary relationship. BIG4, however shows a substitutive relationship with IRAWARD and a complementary relationship with FLSCORE at p<0.1 and p<0.05 respectively. In addition, SUBSHR and NOSUBSHR are not statistically significant in the IRAWARD and FLSCORE equations, but they contribute a substitutive effect to AFA at p<0.1 and p<0.05 respectively. An additional test on reverse causality is also conducted using IV regression (result not reported). In brief, the IV regression reports that the primary results in Tables 6-6, 6-7 and 6-8 are largely unaffected by any endogeneity bias.

6.6 Conclusion

There are several important findings revealed in this chapter. Specifically,

1. Audit committee effectiveness, measured using ACQUALITY and ACQUALITYBR (which is drawn from the recommended benchmark set by the Smith Report (2003) and the US Blue Ribbon recommendation (1998)) is significant in improving FLSCORE, while only ACQUALITYBR appears to affect the receipt of IRAWARD. These findings provide support to the view that compliance with the recommended norm set by regulators improves a firms' governance process and subsequently increases disclosure quality.
2. Board related variables such as BODSIZE, BODMEET, BODIND and CHAIRMULT also have a positive influence on disclosure quality (measured using FLSCORE). The importance of board characteristics in explaining FLSCORE is also demonstrated in the 2SLS regression, signalling that these findings are robust to the endogeneity issue.
3. With regard to the 2SLS regression, the potential endogenous relationship between BODIND and disclosure quality offers mixed findings, depending on the types of disclosure quality proxies that are used. No simultaneous relationship between BODIND and IRAWARD is reported; while FLSCORE and BODIND show that positive simultaneous relationships exist. When AFA is used as a proxy for disclosure quality, this study finds that BODIND and AFA are endogenously determined but negatively related to each other.
4. In relation to other BODIND determinants in the 2SLS regression, Model Two of Table 6-8 indicates that BODIND increases with lower BODSIZE, higher PROFVAR and lower LREM.

5. Results for IRAWARD and FLSCORE (in Model Four of Tables 6-5 and 6-6) are largely unaffected after controlling for simultaneity bias using the 2SLS regression. However, there are significant changes in the 2SLS regression results in relation to the AFA variable. Specifically, BODSIZE, SUBSHR and NOSUBSHR report significant relationships with AFA although they are insignificant in Model Four of Table 6-7. In the presence of endogeneity, it is argued that the 2SLS regression results outperformed the previous multivariate test in Table 6-7.
6. With respect to the potential complementary or substitutive effect between board of director and audit committee in imporving firms disclosure quality, the result revealed insignificant relationship between interaction terms and disclosure quality when disclosure quality is measured using IRAWARD and FLSCORE. However, when AFA is employed as a proxy for disclosure quality, BODQUALITY*ACQUALITY revealed a significant negative relationship at $p<0.1$. This finding demonstrate that BODQUALITY and ACQUALITY are substitutive each other in improving firms disclosure quality. Overall, this research contributes to the debate on the effectiveness of corporate governance mechanisms by providing evidence of the substitutive relationship of ACQUALITY and BODQUALITY to the improvement of disclosure quality (measured using AFA) in the relatively less regulated "comply and explain" environment of the UK.

7 Conclusion

This thesis comprises two main projects. The first project examines the influence of disclosure quality on earnings management by controlling for corporate governance vectors. While the second project investigates the impact of corporate governance mechanisms on disclosure quality.

7.1 First project: disclosure quality and earnings management

The first project intends to examine the relationship between disclosure quality and earnings management, by controlling for internal governance mechanisms. The complementary or substitutive relationships between internal governance factors and disclosure quality are also investigated. The present study also considers the potential for a simultaneous relationship between disclosure quality and earnings management. The sample is comprised of the winners and non-winners of the IR Magazine Award during the years 2005 to 2008. Disclosure quality is measured using the IR Magazine Award, the number of forward looking items in the annual report and the analyst forecast accuracy, while earnings management is measured using the Modified Jones (1995) Model.

The results for all disclosure quality proxies are generally very similar. Disclosure quality (measured using the IR Magazine Award, forward looking information and the analyst forecast accuracy) consistently outweighs corporate governance in deterring earnings

management in all the models. Corporate governance shows a weak relationship to earnings management, although audit committee meeting frequencies consistently show a positive relationship to earnings management. This indicates that firms with a greater number of audit committee meetings are more likely to engage in earnings management. The present study also documents substitutive relationship between audit committee effectiveness (ACQUALITY) and disclosure quality (measured using IRAWARD) in deterring earnings management (measured using MJONES). ACQUALITY*IRAWARD reported significant negative relationship at $p<0.05$. This finding demonstrates that there is a complementary relationship between ACQUALITY and IRAWARD in reducing MJONES. The F-test also demonstrate that the interaction terms provides significant contribution to the model, given that the p-value is significant at $p<0.01$. However, when other proxies for disclosure quality is used (e.g. FLSCORE and AFA), the interaction terms are insignificant.

The 2SLS regression reveals that there is a negative simultaneous relationship between disclosure quality (measured using the IR Magazine Award, forward looking score and analyst forecast accuracy) and earnings management, signalling that causality can go in both directions as predicted in the hypothesis. Corporate governance may be effective in reducing information asymmetry and conflict of interest, but it is not able to eliminate it.

This finding supports the theoretical view that disclosure reduces information asymmetry and makes for better informed investors. It is acknowledged, however, that no direct test for the relationship between disclosure and information asymmetry is performed in this study.

In brief, regulators need to review current governance practices and to consider the cost and benefit of compliance.

7.2 Second project: corporate governance and disclosure quality

With regard to the second project, the present study investigates the implication of corporate governance variables for disclosure quality. The influence of audit committee effectiveness on disclosure quality is also examined. The possible complementary or substitutive link between audit committees and boards of directors is also observed. In line with prior research that discusses the endogenous nature of independent directorships (e.g. Lim et al., 2007), the simultaneous relationship between disclosure quality and independent directors is taken into account. This issue has been addressed using a simultaneous equation approach.

When the IR Magazine Award is used as a proxy for disclosure quality, logistic regression reveals that the IR Magazine Award is influenced by audit committee size, audit committee meeting frequency, audit committee multiple directorships, board size, length of chairman tenure and the number of additional directorships being held by the chairman. Firms that received the IR Magazine Award have a high level of audit committee effectiveness, measured using ACQUALITYBR ($p<0.05$). There is clear evidence for the incremental effect of audit committee characteristics in influencing the receipt of the IR Magazine Award, since the R^2 increased from 36.92% to 41.99% after controlling for audit committee variables.

Nonetheless, audit committee characteristics appear to provide both complementary and substitutive effects to board characteristics in influencing receipt of the IR Magazine Award.

With regard to the second measure for disclosure quality, the amount of forward looking information in the annual report, the Poisson regression shows that audit committee independence, audit committee expertise, audit committee meeting frequency, board size, number of chairman additional directorships and board meeting frequencies are significantly and positively related to the amount of forward looking information. Compliance with the recommended benchmark on audit committee effectiveness, outlined in the Smith Report (2003) and the Blue Ribbon Recommendation (1999) and measured using ACQUALITY and ACQUALITYBR, reports clear positive associations with the amount of forward looking information.

Regarding the third proxy for disclosure quality, that is analyst forecast accuracy, the Tobit regression revealed contradict results, whereby, audit committee expertise and board independence are significantly negatively correlated to analyst forecast accuracy.

The second project also demonstrates that there is a significant substitutive effect between board characteristics and audit committee characteristics in enhancing disclosure quality (measured using analyst forecast accuracy). This suggests that firms should focus on either board characteristics or audit committee characteristics, and at the same time enjoy greater benefit of monitoring at a relatively lower cost.

With regard to the potential reverse causality between disclosure quality and independent directors, the results document mixed findings. While no simultaneous relationship is reported for the number of independent directorships and the receipt of the IR Magazine Award, simultaneity is reported between the number of independent directors and the amount of forward looking information. Independent directorships and forward looking information are, therefore, positively determined. Although the number of independent directors and the analyst forecast accuracy show a bi-directional relationship, it is documented that the number of independent directors and the analyst forecast accuracy are negatively determined. This provides a contradictory result to the expectation.

7.3 Overall conclusion: disclosure quality, board independence and earnings management.

Overall, the present study highlights that the interrelationship between disclosure quality, earnings management and corporate governance are far more complex than the complementary relationship that is assumed in the prior literature (e.g. Healy and Wahlen, 1999). On the one hand, the present study reveals that corporate governance fails to show strong effects on reducing earnings management. This implies that the corporate governance code, so far, is not very effective in constraining earnings management. The results are also robust after controlling for endogeneity using 2SLS. On the other hand, corporate governance variables play partially significant roles in enhancing disclosure quality. On the other hand, audit committee effectiveness provides significant effects on

improving forward looking disclosure and performance in the Investor Relations Awards; however, the result does not apply to analyst forecast accuracy. When these results are taken together, it can be stated that the internal mechanisms of corporate governance may be partially successful in improving disclosure quality, but that they are not helpful in mitigating earnings management. This conclusion is not surprising, given that large companies like Enron had sound corporate governance practices while at the same time being involved in a huge corporate scandal.[144] These results suggest that that a revision of the UK Corporate Governance Code (2010) is necessary in order to ensure that all firms benefit from the cost of corporate governance compliance. This present study also demonstrates that disclosure quality outperformed corporate governance in deterring earnings management.

[144] A corporate scandal involving Olympus came to light in 2011 and is still under investigation. This large firm hid losses of 1.3 billion US dollars from the balance sheet and this is obviously an earnings manipulation activity.

7.4 The contribution of the study

The present study makes several main contributions:

1. This study could benefit corporate governance bodies that are considering corporate governance reforms over the current best practices. In particular, this study finds that audit committee meeting frequency appears to be positively related to earnings management. This finding corroborates that of Bédard and Gendron (2010) whom claim that the majority of prior studies found that audit committee meeting frequency is one of the least important variables in respect to improving financial quality. Given that audit committee meetings are a very important platform for audit committees to discuss and share their expertise, it is awkward when it they are viewed as a less credible internal governance mechanism. As stated before, audit committee independence and expertise is of no use to the firm if the committee finds it difficult to meet frequently. Regulators and other standard setters will have to look further into this issue.
2. The findings of this study will be largely beneficial to the shareholders, management and members of the public who are concerned about the detrimental effects of earnings management. In the light of a recent corporate scandal in 2011 involving Olympus, whose top management are currently being investigated for hiding losses of 1.3 billion US dollars from the balance sheet, the finding from this study stresses the importance of firms providing sufficient monitoring and sound information in order to keep investors and analysts well informed.
3. This study is generally useful for researchers who are investigating the implications of corporate governance and disclosure in deterring earnings management. As this study

found that the effects of disclosure outweigh those of corporate governance in reducing earnings management, future research should control for disclosure quality as one of the determinants of earnings management. Moreover, this study is the first (so far) that considers a comprehensive set of internal governance variables in the model when examining the relationship between disclosure quality and earnings management.

4. The present study will also be useful to academics in that it takes into account the potential for simultaneous relationship in the first project (disclosure quality and earnings management), the second project (disclosure quality and board independence) as well as the third project (disclosure quality, board independence, earnings management and corporate performance). It is important to highlight that the causality issues addressed in these three projects have been neglected in the prior literature.
5. Consistent with Arcot and Bruno (2006b)[145] and Basiruddin's (2010) findings, the present study suggests that not all of the UK Corporate Governance Code recommendations are effective when it comes to preventing earnings management. While some evidence is documented, it is still very limited. Given that the UK Corporate Governance Code is costly to implement, it is important to ensure that it is effective in mitigating agency cost.

7.5 Limitations of the current research

The same caveats apply in the current study as to all prior studies in corporate governance, earnings management, disclosure quality and corporate performance:

[145] Arcot and Bruno (2006b) find that compliance with the UK corporate governance code is not associated with higher performance.

1. The corporate governance definition of good best practices is still ambiguous and unresolved (Brickley and Zimmerman, 2010). Hence, it is important to acknowledge that the internal and external governance measures that are used in the present study might also suffer from measurement bias.
2. Given that present study only focused on the absolute value of (unsigned) discretionary accruals, it is imperative that future research uses both positive and negative signed discretionary accruals as proxies for earnings management in order to provide a better understanding of the motives for income increasing and income decreasing activities.
3. Future research should consider other types of earnings management proxies. Although Dechow et al. (2010) claim that the Modified Jones (1995) model is still the best, it is important to note that accrual-based models alone might not be able to capture overall earnings management.
4. The potential simultaneity between disclosure quality and financial analysts is not properly captured in the current study and lies outside the scope of this thesis. To be specific, future research could investigate these relationships using a simultaneous system of equation. This type of research is particularly important in providing a better understanding of the interplay between disclosure and financial analysts. It is also important to note that the present study has no suitable data to cater for this issue; hence, it is not being investigated in this thesis.
5. It is important to highlight that endogeneity is a highly subjective topic and to note that researchers currently do not have enough knowledge to resolve this issue. It is highly uncertain to what extent this problem is actually solved in the model. Although the

current study finds that the results support the hypothesis, they may also be highly sensitive to the choice of instrumental variables or methods that are used by the researcher. The use of lagged endogenous variables has a high (definite) potential to produce similar results to the OLS, but it cannot be claimed that "endogeneity has been solved", given that the lagged endogenous variables also suffer from similar (or possibly worse) biases when compared to the contemporaneous endogenous variables. Moreover, without any specific theoretical, empirical and logical considerations, the choice of instrumental variables has no basis.

6. The N6 Software that has been used to detect forward looking statements in the annual reports may not be able to detect the relevant keywords if there are spelling errors. For example, if "forecast" is spelled "forecsat", then it is not counted in the forward looking score. The present study does not attempt to check the spelling of the narratives in the annual reports. Given that annual reports are lengthy documents that are addressed to various types of users, the present study presumes that such minor spelling mistakes are very rare.
7. Due to a lack of proper data, the present study only controls for lag of return on assets (ROA) in the earnings management equation. More lagged dependent variables and/or lagged independent variables should be included in future models in order to cater for the problem of simultaneity bias, as suggested by Li (2011).

8. It is acknowledged that the measurements for disclosure quality that are used in the present study are also subject to controversy.[146] FLSCORE is based on the number of forward looking disclosures, which is itself subject to a quantity vs. quality issue. Moreover, AFA is viewed in some of the literature (e.g. Iatridis and Kadorinis, 2009) as a disclosure quality proxy that increases managers' propensity to manipulate earnings. In addition, the IRAWARD variable blankets the issue of how serious the analysts are when selecting the winners. The current study makes several efforts to mitigate these problems (i) by performing a validity test on the forward looking information proxy, (ii) by considering the potential for reverse causality between analyst forecast accuracy and earnings management and (iii) by using a control sample of the non-winners of IRAWARD to mitigate sample bias.
9. Moreover, the forward looking disclosure (FLSCORE) proxy, replicated from Hussainey et al. (2003), fails to anticipate bias in the tone of good vs. bad forward looking information, because both types of disclosure may lead to different economic consequences. Schleicher and Walker (2010) argue that it is crucial to consider the effect of the differing tones of forward looking disclosures because they are subject to manipulation by managers.
10. Some other variables should also be treated as endogenous. There are claims in the prior literature (e.g. Lehn et al., 2009; Cornett et al., 2009) that the size of the board (BODSIZE) is endogenous. Firm size and leverage are also widely cited as endogenous variables in

[146] The problems with measurements for disclosure quality proxies are common in the prior literature (Cerbioni and Parbonetti, 2007).

the prior literature. Future research should also take into account the possible endogenous nature of this financial data. Leverage is one form of governance mechanism that is treated as endogenous in prior studies (e.g. Toledo, 2010). The percentage of shares held by the board of directors (BODSHR) is also treated as endogenous in the studies by Farooque et al. (2007) and Coles et al. (2007).

11. Caution should be exercised when interpreting the 2SLS regression results. Although simultaneous equation is a very popular method for solving the simultaneity issue, Coles et al. (2007) and Lent (2007) claim that the available solutions to endogeneity so far (including the simultaneous system of equation, instrumental regressions and fixed-effects) all fail to provide a pure solution to the problem of endogeneity.
12. The economic crises during the years 2007-2008, which witnesses the collapse of large banks in the UK, might affect the findings of this study. Although an adequate test for robustness has been conducted, it is possible that a bias was introduced from other sources that are not accounted for.

7.6 Recommendations for future research

Several recommendations for future research are outlined below:

a. Given that endogeneity is one of the central problems in research on disclosure quality, earnings management, corporate governance and performance, future research should consider using lagged data for all financial data. Li (2011) and Lo et al. (2010) claim that the use of lagged data controls for endogeneity.

b. Research which examine the potential simultaneity in the relationship between disclosure quality and financial analysts is worthy of exploration, given that there is a lack of this type of research. Such research, using a simultaneous system of equation, will provide a better understanding of the interplay between disclosure and analysts.

c. The blockholder effect on disclosure quality and earnings management is also an interesting topic that could be addressed in future research. There is a lack of evidence for how internal and external blockholders react with disclosure quality and earnings management, although it is generally understood that both of them have a monitoring function in firms. Different types of blockholding (i.e., in institutions, in financial firms, in non-financial firms, and by individuals) may also have differing effects on a firm's disclosure quality or earnings management, especially when the potential for non-linear relationships are considered.

d. Future research should focus on the implications of disclosure quality for deterring earnings management using different measures, datasets and countries. There is still a lack of this type of research. More research on the complementary and substitutive links between governance variables is necessary because the information that is currently available is far from perfect and these relationships are extremely complicated.

e. Moreover, it is crucial to focus on the implication of compliance vs. non-compliance with the UK Corporate Governance Code for reducing managers' opportunistic behaviours. In the light of the current findings, it is essential to incorporate disclosure quality as one of the control variables in the earnings management equation.

f. Recently, studies on audit committee effectiveness have concentrated on audit committee financial literacy, multiple directorships, audit committee ownership and the knowledge and expertise of audit committee members in specific industries. Although these characteristics are worthy of exploration, it is important to note that other audit committee characteristics, such as audit committee meeting frequency, have been ignored. Bédard and Gendron (2010) point out that most prior studies show that the frequency of audit committee meetings does not influence financial reporting quality. This is a serious issue, given that it is unhelpful to have highly independent directors with vast experience as audit committee members, if they are unable to have the optimal number of audit committee meetings. Audit committee meetings are the only platform that audit committee members have to seriously discuss a firm's financial matters. Hence, it is crucial to investigate what constitutes an effective audit committee meeting and how its effectiveness can be improved.

g. Brickley and Zimmerman (2011) emphasise that research in corporate governance and disclosure should control for product market competition "because various characteristics of the financial reporting system such as transparency, timeliness and conservatism likely affect *both* the ability of the board and shareholders to monitor managers and entry by potential competitors" (p. 243). The present study has neglected to control for product market competition and it is suggested that future studies should incorporate this variable in order to avoid the issue of omitted variables.

h. While it is hoped that the findings of this research will be of benefit to policymakers charged with revising and considering the current standard of corporate governance and

disclosure, the information asymmetry between academic research and business practice tends to result in policymakers being less appreciative of the value of research (Singleton-Green, 2010). The present study considers that tackling this issue should be a priority.

i. Recently, a few studies have examined the impact of religion on mitigating earnings management (e.g. McGuire et al., 2011; Callen et al., 2011). This is very encouraging, given that all current solutions to earnings management carry a cost to the firms. It would be worthwhile to investigate less costly remedies for earnings management such as religion, culture and belief. It is alarming that corporate governance mechanisms are not always successful in preventing agency cost, as the present study finds, and that board and audit committees are not effective in reducing earnings management. It is assumed that religious belief increases an individual's propensity to act rightly, because their mindset is towards pleasing God rather than fulfilling the desires that are determined by capitalism and media-driven consumerism in society. The control of desire reduces greediness for worldly gain and could be expected to mitigate managers' opportunistic behaviours.

References

Abbott, L. J., Parker, S. and Peters, G. F. (2002) Audit committee characteristics and financial misstatement: A study of the efficacy of certain Blue Ribbon Committee recommendation, Working Paper, Available at SSRN: http://ssrn.com/abstract=319125 or doi:10.2139/ssrn.319125.

Abbott, L.J., Parker, S. and Peters, G.F. (2004) Audit committee characteristics and restatements. *Auditing: A Journal of Practice & Theory* 23 (1), pp. 69–87.

Abdul Rahman, R., and Ali, F.H.M. (2006) Board, audit committee, culture and earnings management: Malaysian evidence, *Managerial Auditing Journal*, 21(7), pp. 783-804.

Abhayawansa, S. and Abeysekera, I. (2009) Intellectual capital disclosure from sell-side analyst perspective, *Journal of Intellectual Capital*, 10(2), pp. 294-306.

Aboody, D. and Kaznik, R. (2000) CEO stock option awards and the timing of corporate voluntary disclosures, *Journal of Accounting and Economics*, 29(1), pp. 73–100.

Adam, R. and Ferreira, D. (2007) A theory of friendly boards, *Journal of Finance*, 62, pp. 217-250.

Adams, M. B. and Hossain, M. (1998) Voluntary disclosure in the New Zealand life insurance industry: An empirical test of the managerial-discretion hypothesis, *Journal of Accounting and Public Policy*, 17(2), pp. 245-281.

Adams, R. and Ferreira, D. (2007) A theory of friendly boards, *Journal of Finance* 62, pp. 217–250.

Adkins, L. C. and Hill, R. C. (2007) *Using stata for principles of econometrics*. Third edition, John Wiley & Sons, Inc.

Adler, R. W. and Milne M. J. (1997) Media exposure, company size, industry, and social disclosure practices, paper presented at the *5th International Perspectives on Accounting (IPA) Conference*, Manchester.

Aggarwal, R., and R. Williamson. (2006) Did new regulations target the relevant corporate governance attributes?, Working Paper, Georgetown University.

Agrawal, A. and Chen, M. A. (2006) Analysts conflicts and research quality, working paper, University of Alabama and University of Maryland.

Agrawal, A. and Knoeber, C.R. (1996) Firm performance and mechanisms to control agency problems between managers and shareholders, *Journal of Financial and Quantitative Analysis,* 31(3), pp. 377–397.

Ahmed, K. and Courtis, J.K. (1999) Associations between corporate characteristics an disclosure levels in annual reports: A meta-analysis, *British Accounting Review,* 31 pp. 35-61.

Ahn, S., Jiraporn, P. and Kim, Y. S. (2009) Multiple directorship and acquirer returns. Working Paper.

Ahn, S., Jiraporn, P. and Kim, Y. S. (2010) Multiple directorships and acquirer returns, *Journal of Banking and Finance*, 34(9), pp. 2011–26.

Akerlof, G. A. (1970) The market of 'lemon': quality uncertainty and the market mechanism, *Quarterly Journal of Economics*, 90, pp. 629-650.

Aksu, M. H. and Kosedag, A.(2006) Transparency & disclosure scores and their determinants on the Istanbul Stock Exchange, *Corporate Governance: An International Review*, 14(4), pp. 275-294.

Alford, A., Jones, J., Leftwich, R. and Zmijewski, M. (1993) The relative informativeness of accounting disclosures in different countries, *Journal of Accounting Research,* 31, pp. 183-223.

Ali, C. B., He, Z. and Trabelsi, S. (2008) Unrevealing the relation between disclosure quality, ownership structure, and stock liquidity, *European Financial Management Association 2008 Annual Meeting, Conference Proceedings, Athens, Greece.*

Ali, P. U. and Gregoriou, G. N. (2009*) Insider trading: Global development and analysis*, CRC Press.

Álvarez, I. G., Sánchez, I. M.G. and Domínguez, L. R. (2008) Voluntary and compulsory information disclosed online: The effect of industry concentration and other explanatory factors, *Online Information Review*, 32(5), pp. 596-622.

Andres, C. (2008) Large shareholders and firm performance - An empirical examination of founding-family ownership, *Journal of Corporate Finance*, 14, pp. 431-445.

Ararat, M., Orbay, H. and Yurtoglu, B. B. (2010) The effects of board independence in controlled firms: Evidence from Turkey, Working Paper, Sabanci University.

Araujo, A. Moreira, H. and Tsuchida, M. (2010) Do dividend changes signal future earnings?, *Journal of Financial Intermediation*, 20(1), pp. 117-134.

Arcay, M. R. B. and Vàzquez, M. F. M. (2005) Corporate characteristics, governance rules and the extent of voluntary disclosure in Spain, *Advances in Accounting,* 21, pp. 299-331.

Archambeault., D., DeZoort, F. T and Hermanson, D. (2008) Audit committee incentive compensation and accounting restatements, *Contemporary Accounting Research*, 25(4), pp. 965-992.

Arcot, S. and Bruno, V. (2006a). In letter but not in spirit: An analysis of corporate governance in the UK, Working Paper, London School of Economics.

Arcot, S.R., and V.G. Bruno, (2006b) One size does not fit all, after all: Evidence from corporate governance, Mimeo Financial Markets Group.

Arcot, S. Bruno, V. and Faure-Grimaud, A. (2010) Corporate governance in the UK: Is the comply or explain approach working? International Review of Law and Economics, 30, pp. 193-201.

Arnold, A. J. (1998) UK accounting disclosure practices and information asymmetry during the first quarter of the twentieth century: The effects on the book return and dividend cover, *Journal of Business Finance and Accounting*, 25(7)&(8), (September/October), pp. 775-794.

Arnold, A.J. and Matthews, D. R. (2002) Corporate financial disclosures in the UK, 1920-50: The effects of legislative change and managerial discretion, *Accounting and Business Research*, 32(1), pp. 3-16.

Ashbaugh, H. and Pincus, M. (2001) Domestic accounting standards, international accounting standards, and predictability of earnings, *Journal of Accounting Research*, 39(3), pp. 417-434.

Athanasakou, V. and Hussainey, K. (2010) Forward looking performance disclosure and earnings quality, Working Paper, London School of Economics.

Athanasakou, V. E., Strong, N. C. and Walker, M. (2009) Earnings management or forecast guidance to meet analyst expectations? *Accounting and Business Research,* 39(1), pp. 3-35.

Attig, N., Guedhami, O. and Mishra, D. (2008) Multiple largest shareholders, control contests and implied cost of equity*, Journal of Corporate Finance*, 14, pp. 721-737.

Baek, H. Y., Johnson, D. R. and Kim, J. W. (2009) Managerial ownership, corporate governance and voluntary disclosure, *Journal of Business & Economic Studies*, 15(2), pp. 44-61.

Baginski, S., and J. Hassell. (1997) Determinants of management forecast precision, *The Accounting Review,* 72, pp. 303-312.

Baiman, S. and Verrecchia, R. E. (1995) Earnings and price-based compensation contracts in the presense of discretionary trading and incomplete contracting, *Journal of Accounting and Economics*, 20, pp. 93-121.

Baker, T. A., Collins, D. L. and Reitenga, A. L. (2009) Incentives and opportunities to manage earnings around option grants, *Contemporary Accounting Research*, 26(3), pp. 649-672.

Ball, R. and Brown, P. (1968) An empirical evaluation of accounting income numbers, *Journal of Accounting Research*, 6(2), pp. 159-178.

Ball, R., Robin, A. and Wu, S. J. (2003) Incentives versus standards: properties of accounting income in four Asian countries, and implications for acceptance of IAS, *Journal of Accounting and Economics*, 36(1-3), pp. 235-270.

Balsam, S., Bartov, E and Marquardt, C. (2002) Accrual management, investor sophistication and equity valuation: Evidence from 10-Q Filings, *Journal of Accounting Research,* 40(4), pp. 987-1012.

Bamber, L. S., Jiang, J. X, and Wang, I, Y. (2010) What's my style? The influence of top managers on voluntary corporate financial disclosure, *The Accounting Review*, 85(4), pp. 1131-1162.

Bamber, L.S., Cheon, Y.S. (1998) Discretionary management earnings forecast disclosures: Antecedents and outcomes associated with forecast venue and forecast specificity choices, *Journal of Accounting Research,* 36 (2), pp. 167–190.

Barako, D. G., Hancock, P. and Izan, H. Y. (2006) Factors influencing voluntary corporate disclosure by Kenyan companies, *Corporate Governance: An International Review*, 14(2), pp. 107- 25.

Barker, R. G. (1998) The market for information- evidence from finance directors, analysts and fund managers, *Accounting and Business Research,* 29(1), pp. 3-20.

Barrett, M.E. (1975) Annual Report Disclosure: Are American Reports Superior?, *Journal of International Business Studies*, pp. 15-24.

Barron, O. E., Kile, C. O. and O'Keefe, T. B. (1999) MD&A quality as a measure by the SEC and analysts' earnings forecasts, *Contemporary Accounting Research*, 16, Spring, pp. 75–109.

Barry, C. B. and Brown, S. J. (1984) Differential information and the small firm effect, *The Journal of Financial Economics*, 13, pp. 283-294.

Barth, M., Elliot, J. and Finn, M. (1999) Market rewards associated with patterns of increasing earnings, *Journal of Accounting Research,* 37, pp. 387- 413.

Bartov, E. and Monaharam, P. (2004) Private information, earnings manipulations and executive stock-option exercises, *The Accounting Review*, 79(4), pp. 889-920.

Bartov, E., Givoly, D. and Hayn, C. (2002) The rewards to meeting or beating earnings expectations, *Journal of Accounting and Economics,* 33, pp. 173–204.

Bartov, E., Givoly, D., and Hayn, C. (2002) The rewards to meeting or beating earnings expectations, *Journal of Accounting and Economics*, 33, pp. 173–204.

Bartov, E., Gul, F.A. and Tsui, J.S.L. (2001) Discretionary accruals models and audit qualifications, *Journal of Accounting and Economics*, 30(3), pp. 421-452.

Bassett, M., Koh, P. and Tutticci, I. (2007) The association between employee stock option disclosures and corporate governance: Evidence from an enhanced disclosure regime, *The British Accounting Review*, 39(4), pp. 303-322.

Bathala, C. and Rao, R. (1995) The determinants of board composition: An agency theory perspective, *Managerial and Decision Economics*, 16, pp. 59-69.

Bauer, T. and Boritz, J. E. (2009) Corporate reporting awards and financial reporting quality, Working Paper, University of Waterloo.

Bauer, T. and Boritz, J. E. (2009) Corporate reporting awards and financial reporting quality, Working Paper, University of Waterloo.

Baxter, P. and Cotter, J. 2009. Audit committees and earnings quality, *Accounting & Finance*, 49(2), pp. 267-290.

Beasley, M. (1996) An empirical analysis of the relation between the board of director composition and financial statement fraud, *The Accounting Review*, 71(4), pp. 443-65.

Beasley, M. J., Carcello, D. H. and Lapides, P. (2000) Fraudulent financial reporting: consideration of industry traits and corporate governance mechanism*, Accounting Horizon*, 14(4), pp. 441-454.

Beasley, M. S., Carcello, J. V., Hermanson, D. R., Lapides, P. D. (2000) Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons* 14, pp. 441-454.

Beattie, V. (2005) Moving the financial accounting research front forward: The UK contribution, *The British Accounting Review*, 37, pp. 85-114.

Beattie, V., Mc Innes, B. and Fearnley, S. (2004) A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes, *Accounting Forum*, 28, pp. 205-36.

Beaver, W. (1998) Financial Reporting: An Accounting Revolution, 3rd edn (Prentice-Hall, Upper Saddle River, NJ).

Beaver, W.H., McNichols, M. F. and Nelson, K. K. (2000) Management of the loss reserve accrual and the distribution of earnings in the property-casualty insurance industry, Working Paper, Stanford University.

Bebchuk, L., Cohen, A. and Ferrell, A. (2009) What matters in corporate governance? *The Review of Financial Studies,* 22, pp. 783–827.

Becker, C., DeFond, M., Jiambalvo, J. and Subramanyam, K.R. (1998) The effects of audit quality on earnings management, *Contemporary Accounting Research*, 15(1), pp. 1-24.

Bédard, J., Chtourou, S. M. and Courteau, L. (2004) The effect of audit committee expertise, independence, and activity on aggressive earnings management, *Auditing: A Journal of Practice & Theory,* 23(2), pp. 13-35.

Belkaoui, A. R. (2001) Accounting Theory. Wiley and Thomson.

Beneish, M. (2001) Earnings management: A perspective, *Managerial Finance*, 27(12), pp. 3-17.

Beretta, S. and Bozzolan, S. (2008) Quality versus quantity: The case of forward-looking disclosure, *Journal of Accounting, Auditing & Finance,* pp. 333-375.

Bernard, V. and Schipper, K. (1994) Recognition and disclosure in financial reporting, Ann Arbor, MI Unpublished Paper, University of Michigan.

Beyer, A., Cohen, D. A., Lys, T, Z. and Walther, B. R. (2010) The financial reporting environment: Review of the recent literature, *Journal of Accounting and Economics*, 50, pp. 296-543.

Bhagat, S. and B. S. Black. (2002) The non-correlation between board independence and long-term firm performance*, Journal of Corporation Law*, 27, pp. 231-273.

Bhagat, S. and Black, B. (1999) The uncertain relationship between board composition and firm performance, *The Business Lawyer*, 54(3), pp. 921-63.

Bharath, S. T., Jayaraman, S and Nagar, V. (2010) Exit as Governance: An Empirical Analysis, Working Paper, Arizona State University.

Bhat, G., Hope, O.-K. and Kang, T. (2006) Does corporate governance transparency affect the accuracy of analyst forecasts?, *Accounting & Finance*, 46(5), pp. 715-32.

Biddle, G. C., Hilary G. and Verdi, R. S. (2009) How does financial reporting quality relate to investment efficiency?, *Journal of Accounting and Economics*, 48, pp. 112-131.

Black, B. S. and W. Kim. (2007) The value of board independence in an emerging market: IV, DiD, and time series evidence from Korea, *University of Texas Law, Law and Econ Research Paper, No. 89*.

Black, B.S., H. Jang and W. Kim. 2006. Does Corporate Governance Affect Firms' Market Values? Evidence from Korea, *Journal of Law, Economics and Organization*, 22, pp. 366-413.

Boesso, G. (2003) How to assess the quality of voluntary disclosure, Working Paper, Available at SSRN: http://ssrn.com/abstract=826451.

Boesso, G. and Kumar, K. (2007) Drivers of corporate voluntary disclosure, a framework and empirical evidence from Italy and United States, *Accounting, Auditing & Accountability Journal,* 20(2), pp. 269-296.

Bonazzi, L. and Islam, M. N. (2007) Agency theory and corporate governance: A study of the effectiveness of board in their monitoring of the CEO, *Journal of Modelling in Management,* 2(1), pp. 7-23.

Boone, A., Field, L., Karpoff, J., Raheja, C. (2007) The determinants of corporate board size and composition: an empirical analysis, *Journal of Financial Economics,* 85, pp. 66-101.

Borokhovich, K.A., Brunarski, K., Donahue, M. and Harman, Y. (2006) The importance of board quality in the event of a CEO death, *The Financial Review,* 41, pp. 307-337.

Börsch-Supan, A., Köke, J. (2002) An applied econometricians' view of empirical corporate governance studies, *German Economic Review,* 3, pp. 295-326.

Botosan, C. (2000) Evidence that greater disclosure lowers the cost of equity capital, *Bank of America Journal of Applied Corporate Finance*, 12 (4), pp. 60-69.

Botosan, C. A. (1997) Disclosure level and cost of equity capital, *The Accounting Review*, (July), pp. 323-349.

Botosan, C. and Plumlee, M. (2001) Estimating expected costs of equity capital: a theory-based approach, Working Paper, University of Utah. Available at SSRN: http://ssrn.com/abstract=279309.

Botosan, C. and Plumlee, M. (2002) A re-examination of disclosure level and the expected cost of equity capital, *Journal of Accounting Research*, 40, pp. 21–40.

Botosan, C., Stanford, M. (2005) Managers' motives to withhold segment disclosures and the effect of SFAS No. 131 on analysts' information environment, *The Accounting Review*, 80, pp. 751–771.

Botosan, C.A. and Stanford, M. (2005) Managers' motives to withhold segment disclosures and the effect of SFAS No. 131 on analysts' information environment, *The Accounting Review,* 80 (3), pp. 751–771.

Boubaker, S. and Labégorre, F. (2008) Ownership structure, corporate governance and analyst following: A study of French listed firms, *Journal of Banking and Finance,* 32, pp. 961–976.

Bozzolan, S., Trombetta, M. and Beretta, S. (2009) Forward-looking disclosures, financial verifiability and analyst's forecasts: A study of cross-listed European firms, *European Accounting Review,* 18(3), pp. 435-473.

Bradbury, M. E., Mak, Y. T. and Tan, S. M. (2004) Board characteristics, audit committee characteristics and abnormal accruals, Working Paper, Massey University, Available at SSRN: http://ssrn.com/abstract=535764.

Bradbury, M., Y. Mak, and S. Tan, (2006) Board characteristics, audit committee characteristics and abnormal accruals, *Pacific Accounting Review* 18, 47–68.

Brennan, M. and Subrahmanyam, A. (1995) Investment analysis and price formation in securities markets, *Journal of Financial Economics*, 3, pp. 361-381.

Brennan, N. (2006) Boards of directors and firm performance: Is there an expectations gap? *Corporate Governance: An International Review*, 14, pp. 577-594.

Brockman, P. And Unlu, E. (2010) Earned/contributed capital, dividend policy, and disclosure quality: An international study, *Journal of Banking & Finance*, doi: 10.1016/j.jbankfin.2010.11.014.

Brockman, P., Martin, X. and Puckett, A. (2011) Voluntary disclosures and exercise of CEO stock options, *Journal of Corporate Finance*, 16, pp. 120-136.

Bronson, S. N., Carcello, J. V., Hollingsworth, C. W. and Neal, T. L. (2009) Are fully independent audit committees really necessary? *Journal of Accounting and Public Policy*, 28, pp. 265-280.

Brown, L. D. (2001) A temporal analysis of earnings surprises: Profit versus losses, *Journal of Accounting Research*, 39, (September), pp. 221-241.

Brown, L. D. and Pinello, A. S. (2007) To what extent does the financial reporting process curb earnings surprise games? Georgia State University Working paper.

Brown, L. D., and Caylor, M. L. (2006) Corporate governance and firm valuation, *Journal of Accounting and Public Policy,* 25, pp. 409–434.

Brown, S. and Hillegeist, S. A. (2003) Disclosure quality and information asymmetry, Working Paper, Emory University.

Brown, S., Hillegeist, S. A. and Lo, K. (2004) Conference calls and information asymmetry, *Journal of Accounting and Economics*, 37, pp. 343-366.

Brown, S., Hillegeist, S. A. and Lo, K. (2004) Conference calls and information asymmetry, *Journal of Accounting and Economics*, 37, pp. 343-368.

Burgstahler, D. and Dichev. I. (1997) Earnings management to avoid earnings decreases and losses, *Journal of Accounting and Economics*, 24(1), pp. 99-126.

Bushee, B. (1998) Institutional investors, long term investment and earnings management, *The Accounting Review*, pp. 305-333.

Bushee, B. J. and Noe, C. F. (2000) Corporate disclosure practices, institutional investors, and stock return volatility, *Journal of Accounting Research*, 38, Supplement: Studies on Accounting Information and the Economics of the Firm, pp. 171-202.

Bushman, R. and Smith, A. (2001) Financial accounting information and corporate governance, *Journal of Accounting and Economics,* 32, pp. 237-333.

Bushman, R. M., Piotroski, J. and Smith, A. (2004) What determines corporate transparency? *Journal of Accounting Research*, 42(2), pp. 207–251.

Buzby, S. L. (1974) Selected items of information and their disclosure in annual reports, *The Accounting Review,* 49(3), pp. 423-435.

Buzby, S. L. 1974. The nature of adequate disclosure. *Journal of Accountancy*, April, pp. 38-47.

Buzby, S.L. (1975) Company size, listed versus unlisted stocks, and the extent of financial disclosure, *Journal of Accounting Research*, 13(1), Spring, pp. 16-37.

Byard, D., Li, Y. and Weintrop, J. (2006) Corporate governance and the quality of financial analysts' information, *Journal of Accounting and Public Policy*, 25, pp. 609-25.

Byrd, J. J. and Hickman, K. A. (1992) Do outside directors monitor managers?, *Journal of Financial Economics,* 32, 1992, pp. 195-221.

Call, A. C., Chau, S., Miao, B. and Tong, Y. H. (2010) Do firms issuing short-term earnings guidance exhibit worse earnings quality? Working Paper, University of Georgia.

Callen, J. L., Morel, M. and Rich, G. (2011) Do culture and religion mitigate earnings management? Evidence from a cross-country analysis, *International Journal of*

Disclosure and Governance, 8, pp. 103–121; doi:10.1057/jdg.2010.31; published online 16 December 2010.

Campbell, D., Craven, B. and Shrieves, P. (2003) Voluntary social reporting in three FTSE sectors: a comment on perception and legitimacy, *Accounting, Auditing & Accountability Journal*, 16(4), pp. 558-581.

Carcello, J. V., Hollingsworth, C. W., Klein, A. and Neal, T. L. (2006) Audit committee financial expertise, competing corporate governance mechanisms, and earnings management, Working Paper, University of Tennessee, Available at SSRN: http://ssrn.com/abstract=887512.

Cerf, R. A. (1961) *Corporate reporting and investment decisions.* Berkeley, CA: Institute of Business and Economic Research, The University of California.

Chan, K. C. and Seow, G. S. (1996) The association between stock returns and foreign GAAP earnings versus earnings adjusted to U.S. GAAP, *Journal of Accounting and Economics,* 21, pp. 139-158.

Chang, J. C. and Sun, H. L. (2009) Crossed-listed foreign firms' earnings informativeness, earnings management and disclosures of corporate governance information under SOX, *The International Journal of Accounting*, 44, pp. 1-32.

Chang, M., D'Anna, G., Watson, I. and Wee, M. (2008) Does disclosure quality via investor relations affect information asymmetry?, *Australian Journal of Management*, 33(2), pp. 375-390.

Charoenwong, C. and Jiraporn, P. (2009) Earnings management to exceed thresholds; Evidence from Singapore and Thailand, *Journal of Multinational and Financial Management*, 19, pp. 221-236.

Chau, G. K. and Gray, S. J. (2002) Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore, *The International Journal of Accounting*, 37, pp. 247-265.

Chen, C. J. P. and Jaggi, B. (2000) Association between independent non-executive directors, family control and financial disclosures in Hong Kong, *Journal of Accounting and Public Policy*, 19, pp. 285–310.

Chen, E-T. and Nowland. J. (2010). Optimal monitoring in family-owned companies? Evidence from Asia, *Corporate Governance: An International Review*, 18(1), pp. 3-17.

Chen, G., Firth, M., Gao, D. N. and Rui, O. M. (2006) Ownership structure, corporate governance, and fraud: Evidence from China, *Journal of Corporate Finance* 12, pp. 424– 448.

Cheng, E. C. M., Courtenay, S. M. and Krishnamurti, C. K. (2006) The impact of increased voluntary disclosure on market information asymmetry, informed and uninformed trading, *Journal of Contemporary Accounting & Economics*, 2(2), pp. 33-72.

Chenhall, R. H., and Moers, F. (2007) The issue of endogeneity within theory-based, quantitative management accounting research, *European Accounting Review*, 16(1), pp. 173-195.

Cheung, C. S. and Lee, J. (1995) Disclosure environment and listing on foreign stock exchanges, *Journal of Banking & Finance*, 19, pp. 347-362.

Chiang, H-T. (2005) An empirical study of corporate governance and corporate performance, *The Journal of American Academy of Business*, Cambridge, March, pp. 95-101.

Cho, D-S. and Kim, J. (2007) Outside directors, ownership structure and firm profitability in Korea, *Corporate Governance: An International Review*, 15, pp. 239-250.

Choi, F, D, S. (1973) Financial disclosure and entry to the European capital market, *Journal of Accounting Research,* Autumn, pp. 159-175.

Choi, F. (1974) European disclosure: The competitive disclosure hypothesis, *Journal of International Business Studies*, fall, pp. 15-23.

Choi, W. W., Gramlich, J. D. and Thomas, J. K. (2001) Potential errors in detecting earnings management: Reexamining studies investigating the AMT of 1986, *Contemporary Accounting Research*, 18(4), Winter, pp. 571-613.

Chow, C. W. and Wong-Boren, A. (1987) Voluntary financial disclosure by Mexican corporations, *The Accounting Review*, 62(3), pp. 533–541.

Christensen, O. P. and Feltham, G. A. (2004) Economics of Accounting: Volume 1 – Information in markets, Springer Series of Accounting Scholarship, Springer.

Christie, A., and Zimmerman, J. (1994) Efficient versus opportunistic choices of accounting procedures: Corporate control contests, *The Accounting Review*, 69, pp. 539-566.

Chtourou, S, M. Bedard, J. and Courteou, L. (2001) Corporate governance and earnings management. Working Paper, available at SSRN at http://papers.ssrn.com/abstract=275053.

Chtourou, S.M., Bedard, J. and Courteau, L. (2001) Corporate governance and earnings management, Working Paper, University Laval, Canada.

Chung, K., Wright, P. and Media, B. (2003) Corproate governance and market valuation of capital and R&D investments, *Review of Financial Economics*, 12, pp. 161-172.

Chung, R. and Kryzanowski, L. (2001) Test of investor cognizance using earnings forecasts of North American analysts, *International Review of Economic and Finance*, 10(2), pp. 187-204.

Chung, R., Firth, M., and Kim, J-B. (2005) Earnings management, surplus free cash flow, and external monitoring, *Journal of Business Research,* 58, pp. 766– 776.

Clement, M., and Tse, S. (2003) Do investors respond to analysts' forecast revisions as of forecast accuracy is all that matters, *The Accounting Review*, 78(1), pp. 227-249.

Clinch, G. and Verrecchia, R. (2011). Endogenous disclosure choice, Working paper, University of Melbourne.

Cohen, J., G. Krishnamoorthy, and A.Wright, (2002) Corporate governance and the audit process, *Contemporary Accounting Research,* 19, pp. 573–592.

Coles, J. L., Daniel, N. D. and Naveen, L. (2008) Boards: Does one size fit all?, *Journal of Financial Economics,* 87, pp. 329–356.

Coller, M. and Yohn, T. L. (1997) Management forecast and information asymmetry: An examination of bid-ask spread, *Journal of Accounting Research*, 35(2), pp. 181-191.

Collier, P. and Gregory, A. (1999) Audit committee activity and agency costs, *Journal of Accounting and Public Policy*, 18 (4, 5), pp. 311-332.

Conyon, M., C. Mallin, and G. Sadler. (2002) The disclosure of directors' share option information in UK companies, *Applied Financial Economics* 12, pp. 95–103.

Cooke, T. E. (1989) Voluntary corporate disclosure by Swedish companies, *Accounting and Business Research*, 19(74), pp. 113-124.

Cooke, T. E. (1998) Regression analysis in accounting disclosure studies, *Accounting and Business Research*, 28(3), pp. 209-24.

Cooke, T. E., and Wallace, R.S.O. (1989) Global surveys of corporate disclosure practices and audit firms: a review essay, *Accounting and Business Research (Winter*), pp. 47-57.

Cooke, T.E. (1992) The impact of size, stock market listing and industry type on disclosure in the annual reports of Japanese listed companies, *Accounting and Business Research*, 22(87), pp. 229-237.

Cooke, T.E. (1998) Regression analysis in accounting disclosure studies, *Accounting and Business Research*, 28(3), pp. 209-224.

Core, J. E. (2001) A review of the empirical disclosure literature: Discussion, *Journal of Accounting and Economics*, 31(1-3), pp. 441-456.

Cormier, D. and Martinez, I. (2006) The association between earnings forecast, earnings management, and stock market valuation; Evidence from French IPOs, *The International Journal of Accounting*, 41, pp. 209-236.

Cormier, D. and Martinez, I. (2006) The association between management earnings forecasts, earnings management, and stock market valuation: Evidence from French IPOs, *The International Journal of Accounting*, 41, pp. 209-236.

Cormier, D., Magnan, M. and Morard, B. (2000) The contractual and value relevance of reported earnings in a dividend-focused environment, *European Accounting Review*, 9(3), pp. 387−417.

Cornett, M. M., Marcus, A. and Tehranian, H. (2008) Corporate governance and pay-for-performance: The impact of earnings management, *Journal of Financial Economics*, 87, pp. 357-373.

Cornett, M. M., Marcus, A. J. and Tehranian, H. (2008) Corporate governance and pay-for-performance: The impact of earnings management, *Journal of Financial Economics*, 87(2), pp. 357-373.

Cox, C. T. (1985) Further evidence on the representativeness of management earnings forecasts, *The Accounting Review*, October, pp. 692-701.

Dahya, J., Dimitrov, O. and McConnell, J. (2008) Dominant shareholders, corporate boards, and corporate value: A cross-country analysis', *Journal of Financial Economics*, 87, pp. 73-100.

Dahya, J., Lonie, A.A. and Power, D.M. (1996) The case for separating the roles of Chairman and CEO: An analysis of stock market and accounting data, *Corporate Governance: An International Review,* 4 (1), pp. 71–77.

Daines, R., Gow, I. and Larcker, D. (2010) Rating the ratings: how good are commercial governance ratings?, *Journal of Financial Economics*, 98, pp. 439–461.

Dalton, D., Daily, C., Johnson, J., Ellstrand, A. (1999) Number of directors and financial performance: a meta-analysis. *Academy of Management Journal*, 42, pp. 674–686.

Darrough, M. N. and Stoughton, N. M. (1990) Financial disclosure policy in an entry game, *Journal of Accounting and Economics*, 12, pp. 219–243.

Daske, H. and Gebhardt, G. (2006) International financial reporting standards and perceptions of disclosure quality, *Abacus*, 42(3/4), pp. 461-498.

Davidson, R. and McKinnon, J. G. (1993) *Estimation and Inference in Econometrics*, New York: Oxford University Press.

Davidson, W. N., Jiraporn, P., Kim, Y. S. and Nemec. C. (2004) Earnings management following duality-creating successions: Ethnostatistics, impression management and agency theory, *Academy of Management Journal,* 47(2), pp. 267-275.

DeAngelo, H., DeAngelo, L. and Skinner, D. J. (1996) Reversal of fortune: Dividend signalling and the disappearance of sustained earnings growth, *Journal of Financial Economics*, 40, pp. 341-371.

DeAngelo, L. E. (1986) Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders, *The Accounting Review*, pp. 400-420.

Debreceny, R. and Rahman, A. (2005) Firm specific determinants of continuous corporate disclosures, *The International Journal of Accounting,* 40, pp. 249-278.

Dechow, P. M., Dauglas, J. and Skinner, J. (2000) Earnings management, reconciling the views of accounting academics, practitioners and regulators, *Accounting Horizons*, 14(2), pp. 235-250.

Dechow, P. M., Sloan, R. G. and Sweeney, A. P. (1995) Detecting earnings management, *The Accounting Review*, 70(2), pp. 193-225.

Dechow, P., Ge, W. and Schrand, C. (2010) Understanding earnings quality: A review of the proxies, their determinants and their consequences, *Journal of Accounting and Economics,* 50, pp. 344-401.

Dechow, P., Richardson, S. and Tuna, I. (2000) Are benchmark beaters doing anything wrong?, Working Paper, April, Available at SSRN: http://ssrn.com/abstract=222552.

Dechow, P., Richardson, S. and Tuna, I. (2003) Why are earnings kinky? An examination of the earnings management explanation, *Review of Accounting Studies* 8(3), pp. 355-384.

Dechow, P., Sloan, R. and Sweeney, A. (1995) Detecting earnings management, *The Accounting Review*, 70(2), pp. 193-225.

Dechow, P.M. and Dichev, I.D. (2002) The quality of accounting and earnings: The role of accrual estimation errors, *The Accounting Review,* 77, pp. 35-59.

Dechow, P.M., Sloan, R. G. and Sweeney, A. (1996) Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC, *Contemporary Accounting Research,* 13, pp. 1-36.

Dedman, E. Lin, S. W.-J. Prakash, A. J. and Chang, C-H. (2008) Voluntary disclosure and its impact on share prices: Evidence from the UK biotechnology sector, *Journal of Accounting and Public Policy*, 27, pp. 195-216.

Deegan, C. and Rankin, M. (1997) The materiality of environmental information to users of annual reports, *Accounting, Auditing & Accountability Journal*, 10(4), pp. 562-583.

DeFond, M. L. and Jiambalvo, J. (1994) Debt covenant violation and manipulation of accruals*, Journal of Accounting and Economics*, 17, pp. 145-176.

DeFond, M., Park, C. (1997) Smoothing income in anticipation of future earnings, *Journal of Accounting and Economic,* 23, pp. 115-139.

Degeorge, F., Patel, J. and Zeckhauser, R. (1999) Earnings management to exceed thresholds, *Journal of Business*, 72(1), pp. 1−33.

Demsetz, H. and Lehn, K. (1985) The structure of corporate ownership causes and consequences, *Journal of Political Economy,* 93, pp. 1155-1177.

Demsetz, H., and Lehn, K. (1985) The structure of corporate ownership: Causes and consequences, *Journal of Political Economy,* 93, pp. 1155–77.

Demski, J. S. (1998) Performance measure manipulation, *Contemporary Accounting Research*, 15, pp. 261–285.

Demski, J., Patell, J. And Wolfson, M. (1984) Decentralized choice of monitoring systems, *The Accounting Review,* 59, Jan, pp. 16–34.

Denis, D. (2001) Twenty-five years of corporate governance research…and counting, *Review of Financial Economics,* 10, 2001, pp. 191-212.

Depken, C. A., Nguyen, G. X. and Sarkar, S. K. (2006) Agency costs, executive compensation, bonding and monitoring: A stochastic frontier approach, *Working Paper*, University of Texas at Arlington.

Depoers, F. (2000) A cost benefit study of voluntary disclosure: Some empirical evidence from French listed companies, *The European Accounting Review*, 9(2), pp. 245-263.

Dey, A. (2008) Corporate governance and agency conflicts, *Journal of Accounting Research*, 46(5), pp. 1143-1181.

Dhaliwal, D. S. (2001) Discussion of "Potential errors in detection of earnings management: Reexamining studies investigating the AMT of 1986", *Contemporary Accounting Research*, 18(4), Winter, pp. 615-623.

Dhaliwal, D. S., Gleason, C. A. and Mills, L. F. (2004) Last-chance earnings management: Using the tax expense to meet analyst forecasts, *Contemporary Accounting Research*, 21(2), pp. 431-59.

Dhaliwal, D., Li, Z. D., Tsang, A and Yang, Y. G. (2009) Voluntary non-financial disclosure and the cost of equity capital: The case of corporate social responsibility, Working Paper, University of Arizona.

Dhaliwal, D., Naiker, V. and Navissi, F. (2010) The association between accrual quality and the characteristics of accounting experts and mix of expertise on audit committees, *Contemporary Accounting Research*, 27(3), pp. 787-827.

Diamond, D. and Verrechia, R. E. (1991) Disclosure, liquidity and the cost of equity capital, *The Journal of Finance*, September, pp. 1325-1360.

Dierkes, M. and Preston, L.E. (1977) The usefulness and use of social reporting information, *Accounting, Organizations and Society*, 10(1), pp. 29-34.

Doidge, C., Karolyi, G.A. and Rene, M.S. (2007) Why do countries matter so much for corporate governance?, *Journal of Financial Economics*, 86(l), pp. 1-39.

Donnelly, R. and Mulcahy, M. (2008) Board structure, ownership and voluntary disclosure in Ireland, *Corporate Governance: The International Review*, 16, pp. 416-429.

Donoher, W. J., Reed, R. and Storrud-Barnes, S. F. (2007) Incentive alignment, control and the issue of misleading financial disclosures, *Journal of Management*, 33, pp. 547-569.

Doucouliagos, H., Haman, J. and Askary, S. (2007) Directors' remuneration and performance in Australian banking, *Corporate Governance: The International Review*, 15, pp. 1363-1382.

DuCharme, L. L., Malatesta, P. H. and Sefcik, S. E. (2004) Earnings management, stock issues, and shareholder lawsuits, *Journal of Financial Economics,* 71, pp. 27-49.

DuCharme, L.L., Malatesta, P. H., and Sefcik, S.E. (2001) Earnings management: IPO valuation and subsequent performance, *Journal of Accounting, Auditing, and Finance*, 16, pp. 369-396.

Duru, A. and Reeb, D. M. (2002) International diversification and analyst forecast accuracy and bias, *The Accounting Review*, 77(2), pp. 415-433.

Dyck, A., Morse, A. and Zingales, L. (2006) Who blows the whistle on corporate fraud? Working paper, University of Toronto.

Dye, R. (1985) Disclosure of non-proprietary information, *Journal of Accounting Research*, 23, pp. 123-145.

Easley, D., Kiefer, N. M. and O'Hara, M. (1997) One day in the life of a very common stock, *Review of Financial Studies*, 10(3), pp. 805-835.

Easley, D., O'Hara, M. and Paperman, J. (1998) Financial analysts and information-based trade, *Journal of Financial Markets*, 1, 2 (August), pp. 175-201.

Easton, P. D. and Harris, T. S. (1991) Earnings as an explanatory variable for return, *Journal of Accounting Research*, 29(1), pp. 19-36.

Easton, P. D. and Zmijewski, M. E. (1989) Cross sectional variation in the stock market response to accounting earnings announcements, *Journal of Accounting and Economics*, 11, pp. 117-141.

Edmans, A. and Manso, G. (2011) Governance through trading and intervention: A theory of multiple blockholders, *Review of Financial Studies*, 24(7),pp. 2395-2428.

Efendi, J., Srivastava, A. and Swanson, E. (2004) Why do corporate managers misstate financial statements? The role of option compensation, corporate governance, and other factors, Working Paper, Texas A&M University.

Eisenberg, T. S., Sundgren, S. and Wells, M. (1998) Larger board size and decreasing firm value in small firms, *Journal of Financial Economics*, 48, pp. 35-54.

Eisenhardt, K. M. (1989) Agency theory: An assessment and review, *The Academy of Management Review*, 14(1), Jan, pp. 57-74.

El-Fattah, T. A. (2009) Voluntary disclosure practises in emerging capital markets: The case of Egypt, Doctoral Thesis, Durham Business School, Durham University.

Eng, L. L. and Mak, Y. T. (2003) Corporate governance and voluntary disclosure, *Journal of Accounting and Public Policy*, 22, pp. 325–345.

Engel, E., Hayes, R. M. and Wang, X. (2010) Audit committee compensation and the demand for monitoring of the financial reporting process, *Journal of Accounting and Economics,* 49, pp. 136-154.

Erickson, M. and Wang, S. (1999) Earnings management by acquiring firms in stock for stock mergers, *Journal of Accounting and Economics*, 27, pp. 149-176.

Ernstberger J., Krotter S. and Stadler C. (2008) Analysts' forecast accuracy in Germany: The effect of different accounting principles and changes of accounting principles, *Business Research*, 1, pp. 26-53.

Ertimur, Y. (2004) Accounting numbers and information asymmetry: Evidence from loss firms, Working Paper, Duke University.

Ertimur, Y.(2004) Accounting numbers and information asymmetry: Evidence from loss firms, Working Paper, Duke University.

Ertimur, Y., Sunder, J.and S. Sunder. (2007) Measure for measure: The relation between forecast accuracy and recommendation profitability of analysts, *Journal of Accounting Research,* 45, pp. 567-606.

Espinosa, B. M. and Trombetta, M. (2004) The reputational consequences of disclosure, I.V.I.E Working Paper No. EC 2004-10, Available at SSRN: http://ssrn.com/abstract=511682.

Fama, E. (1980) Agency problems and the theory of the firm*, Journal of Political Economy,* 88, pp. 288-307.

Fama, E. and Jensen, M. (1983) Separation of ownership and control, *Journal of Law and Economics*, 26, pp. 301-325.

Fama, E. F. and Jensen, M. C. (1983) Separation of ownership and control, *Journal of Law and Economics*, 26, pp. 301-325.

Fama. E. F. and K. French. (1992) The Cross-Section of Expected Stock Returns, *Journal of Finance,* Vol. 47, pp. 427-465.

Fan, J. P. H. and Wong, T. J. (2002) Corporate ownership structure and the informativeness of accounting earnings in East Asia, *Journal of Accounting and Economics*, 33(3), pp. 401-415.

Farooque, O. A., Zijl, T. V., Dunstan, K and Karim, AKM, W. (2007a) Ownership structure and corporate performance: Evidence from Bangladesh, *Asia-pacific Journal of Accounting & Economics*, 14, pp. 127-150.

Farooque, O. A., Zijl, T. V., Dunstan, K and Karim, AKM, W. (2010). Co-deterministic relationship between ownership concentration and corporate performance evidence from emerging economy, *Accounting Research Journal*, 23(2), pp. 172-189.

Felo, A. J., Krishnamurthy, S. and Solieri, S. A. (2003) Audit committee characteristics and the perceived quality of financial reporting: An empirical analysis, Working Paper, Available at SSRN: http://ssrn.com/abstract=401240 or doi:10.2139/ssrn.401240.

Ferris, S. P., Jagannathan, M. and Pritchard, A.C. (2003) Too busy to mind the business? Monitoring by directors with multiple board appointments, *Journal of Finance*, 58, pp. 1087–112.

Fich, E.M. and Shivdasani, A. (2006) Are busy boards effective monitors? *Journal of Finance,* 61(2), pp. 689–724.

Fields, T. D., Lys, T. Z. and Vincent, L. (2001) Empirical research on accounting choice, *Journal of Accounting and Economics*, 31(1-3), September, pp. 255–307.

Firth, M. (1980) Perceptions of auditor independence and official ethical guidelines, *The Accounting Review*, 55, pp. 451-466.

Firth, M. (1984) The extent of voluntary disclosure in corporate annual reports and its associations with security risk measures, *Applied Economics*, 16, pp. 269-277.

Forker, J. J. (1992) Corporate governance and disclosure quality, *Accounting and Business Research,* 22(86), pp. 111–24.

Foster, G. (1986). Financial statement analysis. Englewood Cliffs, NJ7 Prentice-Hall

Francis, J. and Soffer, L. (1997) The relative informativeness of analysts stock's recommendations and earnings forecast revisions, *Journal of Accounting Research*, 35(2), pp. 193-211.

Francis, J. R., Maydew, E. L and Sparks, H. C. (1999) The role of Big 6 auditors in the credible reporting of accruals, *Auditing: A Journal of Practice & Theory* 18, pp. 17–34.

Francis, J., LaFond, R., Olsson, P. M and Schipper, K. (2005) The market pricing of accruals quality, *Journal of Accounting and Economics*, 39, pp. 295–327.

Francis, J., Nanda, D. and Olsson, P. (2008) Voluntary disclosure, earnings quality and cost of capital, *Journal of Accounting Research*, 46(1), pp. 53–99.

Friedlan, J. (1994) Accounting choices by issuers of initial public offerings, *Contemporary Accounting Research*, 11(1), pp. 1−32.

Frye, M. B. and Wang, W. (2010) Boards, uncertainty and the use of fairness opinion, *Corporate Governance: An International Review,* 18(1), pp. 48-63.

Gailbraith, J. R. (2009) Where have all the CEOs gone? Directorship, 35(5), Oct/Nov, pp. 64-66.

Gallagher, D., Gardner, P and Swan, P. (2010) Institutional Swing Trades and Subsequent Firm Performance, Working Paper, University of Sydney.

García-Meca, E. and Sánchez-Ballesta, J. P. (2010) The association of board independence and ownership concentration with voluntary disclosure: A meta- analysis, *European Accounting Review*, 19, pp. 603–627.

Gavious, I. (2007) Market reaction to earnings management: The incremental contribution of analysts, *International Research Journal of Finance and Economics,* 8, pp. 196–214.

Ghazali, N. A. M. and Weetman, P. (2006) Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis, *Journal of International Accounting, Auditing and Taxation*, 15, pp. 226–48.

Gibbins, M., Richardson, A., and Waterhouse, J. (1990) The management of corporate financial disclosure: opportunism, ritualism, policies, and processes, *Journal of Accounting Research, 28(*1), pp. 121-143.

Gibson, S. (2000) On the information content of bank loan-loss disclosures: A theory and evidence from Japan, *International Review of Finance*, 1(1), pp. 53-80.

Gillan, S., Hartzell, J. and Starks, L. (2006) Tradeoffs in corporate governance: Evidence from board structures and charter provisions, Working Paper.

Giroux, G. (2004) *Detecting earnings management*, John Wiley & Sons, Inc., Hoboken, NJ).

Givoly, D., Hayn, C. K. and Kats, S. P. (2010) Does public ownership of equity improve earnings quality?, *The Accounting Review,* 85(1), pp. 195-225.

Glosten, L. and Milgrom, P. (1985) Bid, ask, and transaction prices in a specialist market with heterogeneously informed traders, *Journal of Financial Economics*, 26, March, pp. 71-100.

Gompers, P., Ishii, J. and Metrick, A. (2003) Corporate governance and equity prices, *Quarterly Journal of Economics,* 118, pp.107-155.

Goncharov, I. (2005) *Earnings management and its determinants: Closing gaps in empirical accounting research,* Peter Lang.

Gong, J., Louis, H. and Sun, A. X. (2006) Earnings management and firm performance following open-market repurchases, Working Paper, Pennsylvania State University.

Gray, R. (1992) Accounting and environmentalism: An exploration of the challenge of gently accounting for accountability, transparency, and sustainability, *Accounting, Organizations and Society,* 17, pp. 399-425.

Gray, S. J. and Skogsvik, K. (2004) Voluntary disclosure of quoted pharmaceutical companies in Sweden and the UK: The development over the period 1984-98, *European Accounting Review*, 13(4), pp. 787-805.

Gray, S., Radebaugh, L. and Roberts, C. (1992) International perceptions of cost constraints on voluntary information disclosures: A comparative study of U.K. and U.S. multinationals, *Journal of International Business Studies*, Fourth quarter, pp. 597-622.

Greene, W. H. 2008. Econometric Analysis. 6th ed. Pearson Education, Inc,. Upper Saddle River, New Jersey.

Grüning, M. (2006) Computerized measurement of corporate disclosure quality, Working Paper, European-University Viadrina, Frankfurt.

Grüning, M. (2007) Drivers of corporate disclosure: A structural equation analysis in a central European setting, *Management Research News*, 30(9), pp. 646-660.

Grüning, M. and Ernstberger, J. (2010) The association between disclosure and corporate governance, Working Paper, Paper presented in EAA 33rd annual congress 2010, Istanbul, Turkey.

Gruning, M. (2010) The association between disclosure and corporate governance, Paper presented at European Accounting Association Congress, 2010 Istanbul.

Gu, F. and Li, J. Q. (2007) The credibility of voluntary disclosure and insider stock transactions, *Journal of Accounting Research,* 45(4), pp. 771-810.

Guay, W. R., Kothari, S. P. and Watts, R. L. (1996) A market-based evaluation of discretionary accrual models*, Journal of Accounting Research*, 34, pp. 83-105.

Gul, F., Chen, C. and Tsui, J. (2003) Discretionary accounting accruals, managers' incentives and audit fees, *Contemporary Accounting Research*, 20(3), pp. 441-464.

Gul., F. A., Fung, S. Y. K. and Jaggi, B. (2009) Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise, *Journal of Accounting and Economics*, 47, pp. 265-287.

Guthrie, J. and Parker, L. D. (1989) Corporate social reporting: A rebuttal of legitimacy theory, *Accounting and Business research*, 19(76), pp. 345-352.

Hail, L. (2002) The impact of voluntary corporate disclosures on the ex-ante cost of capital for Swiss firms, *European Accounting Review*, 11(4), pp. 741-773.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. and Tatham, R. L. (2006) *Multivariate data analysis*, Pearson International Edition.

Haniffa, R. and Hudaib, M. (2006) Corporate governance structure and performance of Malaysian listed companies, *Journal of Business Finance and Accounting*, 33(7-8), pp. 1034–62.

Haniffa, R. M. and Cooke, T. E. (2002) Culture, corporate governance and disclosure in Malaysian corporations, *Abacus*, 38(3), pp. 317–49.

Haniffa, R. M. and Cooke, T. E. (2005) The impact of culture and governance on corporate social reporting, *Journal of Accounting and Public Policy*, 24, pp. 391-430.

Haniffa, R. M. and Cooke, T. E. (2005) The impact of culture and governance on corporate social reporting, *Journal of Accounting and Public Policy,* 24, pp. 391-430.

Harris, M. and Raviv, A. (2008) A theory of board control and size, *Review of Financial Studies*, 21, pp. 1797-1832.

HassabElnaby, H. R., Mohammad, E. and Said, A. A. (2008) Nonfinancial performance measures and earnings management, Working Paper, University of Toledo.

Hassan, O. and Marston, C. (2010) Disclosure measurement in the empirical accounting literature: A review article, Working Paper, Brunel University West London.

Hasseldine, J., Salama, A. I. and Toms, J. S. (2005) Quantity versus quality: the impact of environmental disclosures on the reputations of UK Plcs, *The British Accounting Review*, 37, pp. 231-248.

Healy, P. (1985) The effect of bonus schemes on accounting decisions, *Journal of Accounting and Economics,* 20, pp. 125-153.

Healy, P. (1996) Discussion of a market-based evaluation of discretionary accrual models*, Journal of Accounting Research,* 34, pp. 107-115.

Healy, P. and Wahlen, J. (1999) A review of the earnings management literature and its implications for standard setting, *Accounting Horizons*, December, pp. 365-383.

Healy, P. M. and Palepu, K. G. (2001) Information asymmetry, corporate disclosure and the capital markets: A review of the empirical disclosure literature, *Journal of Accounting and Economics*, 31(1-3), September, pp. 405-440.

Healy, P., Hutton, A. and Palepu, K. (1999) Stock price performance and intermediation changes surrounding sustained increase in disclosure, *Contemporary Accounting Research*, 16(3), pp. 485–520.

Heflin, F., Shaw, K. and Wild, J. (2005) Disclosure policy and market liquidity: Impact of depth quotes and order sizes, *Contemporary Accounting Research*, vol. 22, pp. 829–66.

Hermalin, B. and Weisbach, M. (1991) The effect of board composition and direct incentives on firm performance, *Financial Management*, 20, pp. 101-112

Hermalin, B. E. and Weisbach, M. S. (1998) Endogenously chosen board of directors and their monitoring of the CEO, *American Economic Review*, 88, pp. 96–118.

Hidalgo, R. L., García-Meca, M. and Martinez, I. (2011) Corporate governance and intellectual capital disclosure, *Journal of Business Ethics*, 100, pp. 483-495.

Hirst, D. E., Jackson, K. E, Koonce, L and Petroni, K. R. (2003) Improving financial reports by revealing the accuracy of prior estimates, *Contemporary Accounting Research*, 20(1), pp. 165-199.

Ho, S. S. M., and Wong, K. S. (2001) A study of the relationship between corporate governance structures and the extent of voluntary disclosure, *Journal of International Accounting, Auditing and Taxation*, 10(2), Summer, pp. 139–56.

Hoitash, U., Hoitash, R. and Bedard, J. C. (2009) Corporate governance and internal control over financial reporting: A comparison of regulatory regimes, *The Accounting Review*, 84(3), pp. 839–67.

Holm, C. and Schøler, F. (2010) Reduction of asymmetric information through corporate governance mechanism – the importance of ownership dispersion and exposure toward the international capital market, *Corporate Governance: An International Review*, 18(1), pp. 32-47.

Holmstrom, B and Milgrom, P. (1994) The firm as an incentive system, *American Economic Review,* 84, pp. 972-991.

Hong, H., Kubik, J. D. and Solomon, A. (2000) Security analysts' career concerns and herding of earnings forecasts, *RAND Journal of Economics*, 31(1), Spring, pp. 121-144.

Hope, O.-K. and Thomas, W. B. (2008) Managerial empire building and firm disclosure, *Journal of Accounting Research*, 46(3), pp. 591-626.

Hope, O-K. (2003) Disclosure practices, enforcement of accounting standards, and analysts' forecast accuracy: An international study, *Journal of Accounting Research,* 41(2), pp. 235–72.

Hope, O-K. and Kang, T. (2005) The association between macroeconomic uncertainty and analysts' forecast accuracy*, Journal of International Accounting Research*, 4(1), pp. 23–38.

Hossain, M., Perrera, H. H. B. and Rahman, A. R. (1995) Voluntary disclosure in the annual reports of New Zealand companies, *Journal of International Financial Management and Accounting*, 6(1), pp. 69–85.

Hossain, M., Tan, L. M. and Adams, M. (1994) Voluntary disclosure in an emerging capital market: Some empirical evidence from companies listed on the Kuala Lumpur Stock Exchange, *The International Journal of Accounting*, 29(4), pp. 334–51.

Houston, J. F., Lev, B. and Tucker, J. W. (2006) To guide or not to guide? Causes and consequences of stopping and subsequently resuming quarterly earnings guidance, Working Paper, University of Florida, New York University.

Hribar, P. and Collins, D. W. (2002) Errors in estimating accruals: Implications for empirical research, *Journal of Accounting Research,* 40(1), pp. 105-134.

Hsu, G. C.-M. and Koh, P-S. (2005) Does the presence of institutional investors influence accruals management? Evidence from Australia, *Corporate Governance: An International Review,* 13(6), pp. 809-823.

Huang, P. and Zhang, Y. (2008) Does enhance disclosure really reduce agency cost?, Evidence from the value of corporate cash holdings and dividends, Working Paper, School of Management, SUNY at Binghamton.

Huang, P. and Zhang, Y. (2008) Does enhanced disclosure really reduce agency costs? Evidence from the value of corporate cash holdings and dividends, Working Paper, SUNY at Binghamton.

Hughes, P. J. (1986) Signalling by direct disclosure under asymmetric information, *Journal of Accounting and Economics*, 8, pp. 119-142.

Hugon, A and Muslu, V. (2010) Market demand for conservative analysts, *Journal of Accounting and Economics*, 50, pp. 42-57.

Huijgen, C. and Lubberink, M. (2005) Earnings conservatism, litigation and contracting: the case of cross-listed firms, *Journal of Business Finance & Accounting*, 32(7-8), pp. 1275-1309.

Hunton, J., Libby, R. and Mazza, C. (2006) Financial reporting transparency and earnings management, *The Accounting Review*, 81(1), pp. 135-157.

Hussainey, K. and Aal-Eisa, J. (2009) Disclosure and dividend signalling when sustained earnings growth declines, *Managerial Auditing Journal*, 24(5), pp. 445-454.

Hussainey, K. S. M. (2004) A study of the ability of (partially) automated disclosure scores to explain the information content of annual report narratives for future earnings, Doctoral Thesis, Manchester University.

Hussainey, K., Schleicher, T and Walker, M. (2003) Undertaking large-scale disclosure studies when AIMR-FAF ratings are not available: The case of prices leading earnings, *Accounting and Business Research*, 33(4), pp. 275-294.

Hutton, A. P., Miller, G., and Skinner, D. J. (2003) The role of supplementary statements with management earnings forecasts, *Journal of Accounting Research*, 41, pp. 867–890.

Iatridis, G. (2008) Accounting disclosure and firms' financial attributes; evidence from the UK stock market, *International Review of Financial Analysis*, 17(2), pp. 219–241.

Iatridis, G. and Kadorinis, G. (2009) Earnings management and firms financial motives: A financial investigation of UK listed firms, *International review of Financial Analyses*, 18, pp.164-173.

Inchausti, B. G. (1997) The influence of company characteristics and accounting regulation on information disclosed by Spanish firms, *The European Accounting Review*, 6(1), pp. 45-68.

Ingley, C. B. and Van der Walt, N. T. (2004) Corporate governance, institutional investors and conflicts of interest, *Corporate Governance: An International Review*, 12, pp. 354-511.

Iwasaki, I. (2008) Determinants of board composition in a transforming economy: Evidence from Russia, *Journal of Corporate Finance*, 14, pp. 532-549.

Jaggi, B., Leung, S. and Gul, F. (2009) Family control, board independence and earnings management: Evidence based on Hong Kong firms, *Journal of Accounting and Public Policy*, 28, pp. 281-300.

Jans, M., Orens, R. and Lybaert, N. (2005) The relation between disclosure quality, income smoothing and earnings timeliness, Working Paper.

Jensen, M. (2005) *Agency costs* of overvalued equity, *Financial Management,* 34, pp. 5–19.

Jensen, M. C. (1986) Agency costs of free cash flow, corporate finance and take-overs, *American Economic Review*, 76, pp. 323-239.

Jensen, M. C. (1993) The modern industrial revolution, exit and the failure of internal control systems, *The Journal of Finance*, 48, pp. 831-880.

Jensen, M. C. and Meckling, W. H. (1976) Theory of the firm: Managerial behaviour, agency costs and ownership structure, *Journal of Financial Economics*, 3, pp. 305-360.

Jensen, M., Smith, C. (1985) Stockholder, manager and creditor interests: Applications of Agency Theory, in *Recent Advances in Corporate Finance,* Edited by Edward I. Altman and Marti G. Subrahmanyam, Richard D. Irwin, pp. 93-131.

Jiang, W., Lee, P., and Anandarajan, A. (2008) The association between corporate governance and earnings quality: Further evidence using the GOV-Score, *Advances in Accounting, incorporating Advances in International Accounting,* 24, pp. 191-201.

Jiaxin, C. and Manu, G. (2009) Overvaluation and earnings management, *Journal of Banking & Finance*, 33(9), pp. 1652-1663.

Jiraporn, P. Miller, G. A. Yoon, S. S and Kim, Y. S. (2008) Is earnings management opportunistic or beneficial? An agency theory perspective, *International Review of Financial Analysis*, 17, pp. 622–634.

Jiraporn, P., Miller, G. A., Yoon, S. S. and Kim, Y. S. (2008) Is earnings management opportunistic or beneficial? An agency theory perspective, *International Review of Financial Analyst*, 17, pp. 622-634.

Jo, K. and Kim, Y. (2007) Disclosure frequency and earnings management, *Journal of Financial Economics,* 84, pp. 561-590.

John, K., and Senbet, L. (1998) Corporate governance and board effectiveness, *Journal of Banking and Finance*, 22, pp. 371-403

Jonathon B. Hill, Introduction to Stata, Working Paper, University of North Carolina – Chapel Hill.

Jones, J. J. (1991) Earnings management during import relief investigations, *Journal of Accounting Research*, 29, pp. 193-228.

Jones, K, L., Krishnan, G. V. and Melendrez, K. D. (2007) Do models of discretionary accruals detect actual cases of fraudulent and restated earnings? An empirical evaluation, Working Paper, George Mason University, Available at SSRN.

Jung, K. and Kwon, S. Y. (2002) Ownership structure and earnings informativeness: Evidence from Korea, *The International Journal of Accounting*, 37(3), pp. 301-325.

Junker, L. (2005) *Equity carveouts, agency costs and firm value*, Gabler edition Wissenschaft.

Kakabadse. N. and A, Kakabadse. (2007) Chairman of the board: Demographics effects on role pursuit, *Journal of Management Development*, 26(2), pp. 169–92.

Kanagaretnam, K., Lobo, G. J. and Whalen, D. J. (2007) Does good corporate governance reduce information asymmetry around quarterly earnings announcements?, *Journal of Accounting and Public Policy*, 26, pp. 497–522.

Kang, S. and Sivaramakrishnan, K. (1995) Issues in testing earnings management and an instrumental variable approach, *Journal of Accounting Research*, 33(2), pp. 353-367.

Kaplan, R.S. (1985) Comments on Paul Healy: Evidence on the effect of bonus schemes on accounting procedures and accrual decisions*, Journal of Accounting and Economics*, 7, pp. 109-113.

Kaplan, S. E. and Ruland, R. G. (1991) Positive theory, rationality and accounting regulation, *Critical Perspectives on Accounting*, 2(4), pp. 361-374.

Karamanou, I. and Vafeas, N. (2005) The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis, *Journal of Accounting Research,* 43(3), pp. 453-485.

Kasznik, R. (1999) On the association between voluntary disclosure and earnings management, *Journal of Accounting Research*, 37(1), Spring, pp. 57-81.

Kaymak, T, and Bektas, E. (2008) East meets west? Board characteristics in an emerging market: Evidence from Turkish banks, *Corporate Governance: an International Review*, 16, pp. 550-561.

Ke, B. (2001) Why do CEOs of publicly traded firms prefer reporting small increases in earnings and long strings of consecutive earnings increases?, Working Paper, The Pennsylvania State University.

Keasey, K. and Wright, M. (1993) Issues in corporate accountability and governance, *Accounting and Business Research*, 91a, pp. 291-303.

Kennedy, P. (1992) *A Guide to Econometrics*, MIT Press, Cambridge, MA.

Kent, P. Routledge, J and Stewart, J. (2010) Innate and discretionary accruals quality and corporate governance, *Accounting and Finance*, 50, pp. 171-195.

Khanna, T., Palepu, K. G. and Srinivasan, S. (2004) Disclosure practices of foreign companies interacting with U.S. markets, *Journal of Accounting Research*, 42(2),

Khurshed, A., Lin, S. and Wang, W. (2011) Institutional Block-Holdings in UK firms: Do Corporate Control Mechanisms Matter?, *European Journal Of Finance*, 17 (2), pp. 133-152.

Kiel, G. and Nicholson, G. (2003) Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance, *Corporate Governance*, 11(3), pp. 189-205.

Kim, J. Y., Shi, Y. (2011) Voluntary disclosure and the cost of equity capital: Evidence from management earnings forecasts, *Journal of Accounting and Public Policy*, pp. 348-366.

Kim, O. and Verrechia, R. E. (1994) Market liquidity and volume around earnings announcements, *Journal of Accounting and Economics*, 17, January, pp. 41-68.

Kim, Y., Liu, C. and Rhee, S. G. (2003) The effect of firm size on earnings management, Working Paper, University of Hawai'i.

Klein, A. (2000) CEO power, board independence and CEO compensation: An empirical investigation, Working Paper, New York University.

Klein, P., Shapiro, D. and Young, J. (2005) Corporate governance, family ownership, and firm value: The Canadian evidence, *Corporate Governance: The International Review*, 13, pp. 769-784.

Klien, A. (2002) Audit committee, board of director characteristics, and earnings management*, Journal of Accounting and Economics*, 33(3), pp. 375-400.

Koh, P-S. (2003) On the association between institutional ownership and aggressive corporate earnings management in Australia, *The British Accounting Review*, 35, pp. 105–128.

Koh, P-S. (2007) Institutional investor type, earnings management and benchmark beaters, *Journal of Accounting and Public Policy*, 26, pp. 267-299.

Kothari, S. and Zimmerman, J. (1995) Price and return models, *Journal of Accounting and Economics,* 20, pp. 155-192.

Kothari, S. P., Leone, A. J. and Wasley, C. E. (2005) Performance matched discretionary accrual measures, *Journal of Accounting and Economics*, 39, pp. 163-197.

Kothari, S. P., Li, X. and Short, J. E. (2009) The effect of disclosure by management, analysts, and business press on cost of capital, return volatility, and analyst forecasts: A study using content analysis, *The Accounting Review,* 84(5), pp. 1639-1670.

Krishnan, G. (2003) Does big 6 auditor industry expertise constrain earnings management?, *Accounting Horizons*, 17, Supplementary, pp. 1–16.

Krishnan, G. V., and Visvanathan, G. (2008) Does the SOX definition of an accounting expert matter? The association between audit committee directors' accounting expertise and accounting conservatism, *Contemporary Accounting Research*, 25(3), pp. 827-857.

Lakhal, F. 2003. Earning voluntary disclosures and corporate governance: Evidence from France, EFMA 2004 Basel Meetings Paper, Available at SSRN: http://ssrn.com/abstract=500283.

Laksmana, I. (2007) Corporate board governance and voluntary disclosure of executive compensation practices, Working paper, Kent State University. Available at http://SSRN.com/abstract=1103717.

Laksmana, I. (2008) Corporate board governance and voluntary disclosure of executive compensation practices, *Contemporary Accounting Research*, Winter, 25(4), pp. 1147-1182.

Lang, M and Lundholm, R. (1996) Corporate disclosure policy and analysts behaviour, *The Accounting Review*, 71, pp. 467-492.

Lang, M. and Lundholm, R. (1993) Cross-sectional determinants of analyst ratings of corporate disclosure, *Journal of Accounting Research*, 31(2), pp. 246-271.

Lang, M. and Lundholm, R. (2000) Voluntary disclosure and equity offerings: reducing information asymmetry or hyping the stock? *Contemporary Accounting Research*, 17(4), pp. 623–62.

Lang, M., Lins, K. and Maffett, M. (2011) Transparency, liquidity and valuation: International evidence, University of North Carolina at Chapel Hill, Working Paper.

Langberg, N. and Sivaramakrishnan, K. (2010) Voluntary disclosure and analyst feedback, *Journal of Accounting Research*, 48(3), pp. 603-646.

Lanis, R. and Richardson, G. (2011) The effect of board of director composition on corporate tax aggressiveness, *Journal of Accounting and Public Policy*, 30, pp. 50-70.

Lapointe-Antunes, P., Cormier, D., Magnan, M. and Gay-Angers, S. (2006) On the relationship between voluntary disclosure, earnings smoothing and the value

relevance of earnings: The case of Switzerland, *European Accounting Review*, 15(4), pp. 465–505.

Larcker, D. F. and Rusticus, T. O. (2009) On the use of instrumental variables in accounting research, *Journal of Accounting and Economics*, doi:10.1016/j.jacceco.2009.11.004.

Larcker, D., Richardson, S. and Tuna, I. (2007) Corporate governance, accounting outcomes and organizational performance, *The Accounting Review*, 82, pp. 963-1008.

Lashinsky, A. (2001) Bankrupt Analysis, New York Times. 30 November. Source:http://www.nytimes.com/2001/11/30/opinion/30LASH.html?todaysheadlines=&pagewanted=print.

Leech, D. and Leahy, J. (1991) Ownership structure, control type, classifications and the performance of large British companies, *Economic Journal*, 101, pp. 1418-1437.

Lefort, F. and Urzúa, F. (2008) Board independence, firm performance and ownership concentration: evidence from Chile, *Journal of Business Research,* 61, pp. 615–622.

Leftwich, R., Watts, R.L., and Zimmerman, J.L (1981) Voluntary corporate disclosure: the case of interim reporting, *Journal of Accounting Research.* 19, pp. 50-77.

Lehn, K. M., Patro, S. and Zhao, M. (2009) Determinants of the size and composition of US corporate boards: 1935-2000, *Financial Management*, winter, pp. 747-780.

Lemans, J. D. (2009) Goodwill impairment as a tool for earnings management, Master's Thesis Accounting Auditing & Control. Erasmus University Rotterdam.

Leuz, C., Nanda, D. and Wysocki, P. (2003) Investor protection and earnings management: An international comparison, *Journal of Financial Economics,* 69, pp. 505-527.

Leuz, C., Nanda, D. and Wysocki, P. D. (2003) Earnings management and investor protection: An international comparison, *Journal of Financial Economics*, 69(3), pp. 505–27.

Lev, B. (1988) Toward a theory of equitable and efficient accounting policy, *The Accounting Review*, LXIII, Jan, pp. 1-22.

Lev, B. (1992) Information disclosure strategy, *California Management Review*, Summer, pp. 9–32.

Lev, B. and Penman, S. H. (1990) Voluntary forecast disclosure, nondisclosure and stock prices, *Journal of Accounting Research*, Spring, pp. 49–76.

Levitt, A. (1998) The 'Numbers Game', Unpublished remarks, http://www.sec.gov/news/speeches/spch220.txt.

Li, J., Pike, R. and Haniffa, R. (2008) Intellectual capital disclosure and corporate governance structure in UK firms, *Accounting and Business Research*, 38(21), pp.137–59.

Li, J., Pike, R. and Haniffa, R. (2008) Intellectual capital disclosure and corporate governance structure in the UK firms, *Accounting and Business Research*, 38(2), pp. 137-159.

Lim. S., Matolcsy, Z. and Chow, D. (2007) The association between board composition and different types of voluntary disclosure, *European Accounting Review*, 16(3), pp. 555-583.

Lin, J., Li, J. and Yang, J. (2006) The effect of audit committee performance on earnings quality, *Managerial Auditing Journal*, 21(9), pp. 921–33.

Lin, Z-X. and Shih, M. S. H. (2006) Does the stock market see a zero or small positive earnings surprise as a red flag? SSRN.com/abstract=929943.

Liu, Q., and Lu, Z. (2007) Corporate governance and earnings management in the Chinese listed companies: A tunneling perspective, *Journal of Corporate Finance*, 13, pp. 881–906.

Liu, X. (2005) Analysts' response to earnings management, Working Paper, University of Texas at Dallas.

Lo, A. W. Y., Wong, R. M.K. and Firth, M. (2010) Can corporate governance deter management from manipulating earnings? Evidence from related-party sales transactions in China, *Journal of Corporate Finance*, 16, pp. 225–235.

Lo, A. W.Y., Wong, R. and Firth, M. (2010) Can corporate governance deter management from manipulation earnings? Evidence from related-party sales transactions in China, *Journal of Corporate Finance,* 16*,* pp. 225-235.

Lo, K. (2007) Earnings management and earnings quality, *Journal of Accounting and Economics*, accepted manuscript, October 8, pp.1-17.

Lobo, G. and Zhou, J. (2006) Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence, *Accounting Horizons,* pp. 57-73.

Lombardo, D. and Pagano, M. (2002) "Law and equity markets: A simple model" in Corporate Governance Regimes: Convergence and Diversity, edited by Renneboog, L., McCahery, J., Moerland, P. and Raaijmakers, T. Oxford, UK: Oxford University Press, pp. 343-362.

Louis, H. and Robinson, D. (2005) Do managers credibly use accruals to signal private information? Evidence from pricing of discretionary accruals around stock splits, *Journal of Accounting and Economics*, 39(2), pp. 361-380.

Lundholm, R. and Myers, L. A. (2002) Bringing the future forward: The effect of disclosure on the returns-earnings relation, *Journal of Accounting Research*, 40(3), pp. 809–39.

Maher, M. and Andersson, T. (2000) Corporate governance: Effects on firm performance and economic growth, OECD Working Paper.

Maher, M. and Andersson, T. (2000) Corporate governance: Effects on firm performance and economic growth, OECD Working Paper.

Mak, Y.T. and Kusnadi, Y. (2005) Size really matters: Further evidence on the negative relationship between board size and firm value, *Pacific-Basin Finance Journal*, 13, pp. 301-318.

Marshall, A. (1920) *Principles of Economics*, Library of Economics and Liberty. Retrieved June 28, 2010 from the World Wide Web: http://www.econlib.org/library/Marshall/marP1.html.

Marston, C. (2008) Investor relation meetings: Evidence from the top 500 UK companies, *Accounting and Business Research*, 38(1), pp. 21-48.

Marston, C. and Shrives, P. (1991) The use of disclosure indices in accounting research: A review article, *British Accounting Review*, 23(3), pp. 195-210.

Matsunaga, S.R., and Park, C.W. (2001) The effect of missing a quarterly earnings benchmark on the CEO's annual bonus, *The Accounting Review*, 76(3), pp. 313-332.

McEwen, R. and Hunton, J. (1999) Is analyst forecast accuracy associated with accounting information use? *Accounting Horizons*, 13, pp. 1–16.

McGuire, S. T., Omer, T. C. and Sharp, N. Y. (2011) The impact of religion on financial reporting irregularities, *The Accounting Review*, 87(2), (forthcoming)

McInnis, J. M., and Collins, D. W. (2006) Do cash flow forecasts deter earnings management? SSRN.com/abstract=922770.

McKee, T. E. *Earnings management: An executive perspective.* Thompson, 2005.

McNally, G. M., Eng, L. H. and Hasseldine, C. R. (1982) Corporate financial reporting in New Zealand: An analysis of user preference, corporate characteristics and disclosure practices, *Accounting and Business Research*, 13(49), pp. 11-20.

McNichols, M. and. Wilson, G. P. (1988) Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research*, 26, pp. 1-31.

McNichols, M. F. (2000) Research design issues in earnings management studies, *Journal of Accounting and Public Policy*, 19, pp. 313-345.

Meek, G. K., Roberts, C. B. and Gray, S. J. (1995) Factors influencing voluntary annual report disclosures by U.S., U.K. and Continental European multinational corporations, *Journal of International Business Studies*, 26, pp. 555–573.

Menon, K. and William, J. (1994) The use of audit committees for monitoring, *Journal of Accounting and Public Policy,* 13, pp. 121–39.

Mensah, Y. M., Song, X. and Ho, S. S. M. (2004) The effect of conservatism on analysts' annual earnings forecasts accuracy and dispersion, *Journal of Accounting, Auditing, & Finance,* 19, pp. 159–83.

Mensah, Y. M., Song, X. and Ho, S. S. M. (2004) The effect of conservatism on analysts' annual earnings forecasts accuracy and dispersion, *Journal of Accounting, Auditing, & Finance,* 19, pp. 159-83.

Meyer, M. J., Karim, K. E., & Gara, S. C. (2000) Political costs and accounting method choice: The pharmaceutical industry, *The Mid-Atlantic Journal of Business*, 36, pp. 193-215.

Miller, G. (2004) Discussion of what determines corporate transparency?,*Journal of Accounting Research,* 42, pp. 253–67.

Miller, G. S. (2002) Earnings performance and discretionary disclosure, *Journal of Accounting Research,* 40(1), pp. 173–204.

Miller, G. S. and Piotroski, J. D. (2000) Forward-looking earnings statements: Determinants and market response, Working Paper, available at SSRN: http://ssrn.com/abstract=238593.

Miller, P. B. W. and Bahnson, P. R. (2002) *Quality Financial Reporting* (New Work: McGraw-Hill).

Minow, N., Bingham, K. (1995) "The ideal board" in corporate governance. Blackwell Publishers, Cambridge, MA.

Mobus, J. L. (2005) Mandatory environmental disclosures in a legitimacy theory context, *Accounting, Auditing & Accountability Journal*, 18(4), pp. 492-517.

Mohanram, P. S. (2003) How to manage earnings management? Accounting World Magazine, October, a monthly publication of the ICFAI, the Institute of Chartered Financial Analysts of India.

Morck, R., Shleifer, A. and Vishny, R.W. (1988) Management ownership and market valuation: an empirical analysis, *Journal of Financial Economics*, 20, pp. 293-315.

Moreira, J. A. C. and Pope, P. F. (2007) Earnings management to avoid losses: A cost of debt explained, Working Paper, University of Oporto.

Morris, R. D. (1997) Signalling, agency theory and accounting policy choice, *Accounting and Business Research*, 18(69), pp. 47-56.

Morton, R. M. and Neill, J. D. (2001) The value relevance of current and forward-looking accounting information subsequent to a corporate restructuring, *Advances in Accounting*, 18, pp. 195–220.

Mouselli, S., Jaafar, A. and Hussainey, K. (2011) Accrual quality *vis-à-vis* disclosure quality: Substitutites or complements? *The British Accounting Review* (forthcoming).

Mueller. D. (2006) The anglo-saxon approach to corporate governance and its applicability to emerging markets, *Corporate Governance: International Review*, 14(4), pp. 207-219.

Mulford, C. W. and Comiskey, E. E. (2002) *The Financial Numbers Game: Detecting Creative Accounting Practices,* (New York, NY: John Wiley).

Murya, H. (2010) The effectiveness of corporate governance and external audit on constraining earnings management practices in the UK, Doctoral thesis, Durham University.

Myers, J., Myers, A., and Omer, T. (2003) Exploring the term of the auditor-client relationship and the quality of earnings: a case for mandatory auditor rotation?, *The Accounting Review*, 78(3), pp.779-800.

Niskanen, William A. (2005) After enron: Lesson for public policy. Lanham, MD: Rowman & Littlefield Publishers, Inc.

O'Donovan, G. (1999) Managing legitimacy through increased corporate environmental reporting: An exploratory study, *Interdisciplinary Environment Review*, 1(1), pp. 63-99.

O'Donovan, G. (2002) Environmental disclosure in the annual report: Extending the applicability and predictive power of legitimacy theory, *Accounting, Auditing and Accountability Journal*, 15(3), pp. 344-371.

O'Dwyer, B. (2002) Managerial perceptions of corporate social disclosure: An Irish story, *Accounting, Auditing and Accountability Journal*, 15(3), pp. 406-436.

O'Brien, P. and Bhushan, R. (1990) Analyst following and institutional ownership, *Journal of Accounting Research*, pp. 55-76.

Ohlson, J. (1995) Earnings, book values and dividends in equity valuation, *Contemporary Accounting Research*, 11(2), pp. 661-687.

Osborne, J. and Waters, E. (2002) Four assumptions of multiple regression that researchers should always test, *Practical Assessment, Research & Evaluation*, 8(2). Retrieved November 18, 2010 from http://PAREonline.net/getvn.asp?v=8&n=2.

Owusu-Ansah, S. (1998) The impact of corporate attributes on the extent of mandatory disclosure and reporting by listed companies in Zimbabwe, *The International Journal of Accounting,* 33(5), pp. 605-631.

Pallant, J. 2007. SPSS Survival Manual: a Step by Step Guide to Data Analysis Using SPSS for windows (version 15). 3rd ed, Maidenhead. UK.

Pampel, F.C. (2000) Logistic regression: A primer, Sage University Papers Series on Quantitative Applications in the Social Sciences, Series No. 07-132, Sage: Newbury Park, CA.

Patten, D.M. and Trompeter, G. (2003) Corporate responses to political costs: An examination of the relation between environmental disclosure and earnings management. *Journal of Accounting and Public Policy*, 22, pp. 83-94.

Peasnell, K. V., Pope, P. F. and Young, S. (2000) Detecting earnings management using cross-sectional abnormal accruals models, *Accounting and Business Research*, 30(4), pp. 313-326.

Peasnell, Ken V., Pope, Peter F. and Young, Steven. (2000) Board monitoring and earnings management: Do outside directors influence abnormal accruals? Available at SSRN: http://ssrn.com/abstract=249557 or doi:10.2139/ssrn.249557.

Penman, S. H. (1980) An empirical investigation of the voluntary disclosure of corporate earnings forecasts, *Journal of Accounting Research*, Spring, pp. 132-160.

Perry, S. and Williams, T. (1994) Earnings management preceding management buyout offers, *Journal of Accounting and Economics*, 18, pp. 157-179.

Perry, T. (2000) Incentive compensation for outside directors and CEO turnover, presented at Tuck-JFE Contemporary Corporate Governance Conference. SSRN.com/abstract=236033.

Peterson, C. and Plenborg, T. (2006) Voluntary disclosure and information asymmetry in Denmark. *Journal of International Accounting, Auditing and Taxation*, 15, pp. 127-149.

Phillips, J., Pincus, M. and Rego, S. (2003) Earnings management: New evidence based on deferred tax expense, *The Accounting Review* 78(2), pp. 491-521.

Piot, C. (2004) The existence and independence of audit committees in France, *Accounting and Business Research*, 34(3), pp. 223-246.

Piotroski, J.D., Roulstone, D.T. (2004) The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm specific information into stock prices, *The Accounting Review*, 79, pp. 1119–1151.

Powell, J. L. (2008) Semiparametric estimation, The New Palgrave Dictionary of Economics. Second Edition. Eds. Steven N. Durlauf and Lawrence E. Blume. Palgrave Macmillan, (2008) The New Palgrave Dictionary of Economics Online. Palgrave Macmillan. 18 August2011<http://www.dictionaryofeconomics.com/article?id=pde2008_S000469 >doi:10.1057/9780230226203.1508(available via http://dx.doi.org/)10.

Qin, B. (2007) The influence of audit committee financial expertise on earnings quality: U.S. evidence, *ICFAI Journal of Audit Practice*, 4(3), pp. 8-28.

Raffournier, B. (1995) The determinants of voluntary financial disclosure by Swiss listed companies, *The European Accounting Review*, 4(2), pp. 261-280.

Raheja, C. (2005) Determinants of board size and composition: a theory of corporate boards, *Journal of Financial and Quantitative Analysis,* 40, pp. 283–306.

Rainsbury, E. A., Bradbury, M. E. and Cahan, S. F. (2008) Firm characteristics and audit committees complying with 'best practice' membership guidelines, *Accounting and Business Research*, 38, pp. 393–408.

Rajgopal, S. and Venkatachalam, M. (2011) Financial reporting quality and idiosyncratic return volatility, *Journal of Accounting and Economic*, 5, pp. 1-20.

Rajgopal, S., Venkatachalam, M. and Jiambalvo, J. (1999) Is institutional ownership associated with earnings management and the extent to which stock prices reflect future earnings? Working Paper, University of Washington.

Ramsay, I M., and Blair, M. (1993) Ownership concentration, institutional investment and corporate governance: An empirical investigation of 100 Australian companies, *Melbourne University Law Review*, 19, pp 153-194.

Rangan, S. (1998) Earnings management and the performance of seasoned equity offerings, *Journal of Financial Economics,* 50, pp. 101-122.

Ratanajongkol, S., Davey, H. and Low, M. (2006) Corporate social reporting in Thailand: The news is all good and increasing, *Qualitative Research in Accounting & Management,* 3(1), pp. 67-83.

Razman, S. R. and Iskandar, T. M. (2002) The effectiveness of audit committee in monitoring the quality of corporate reporting, Working Paper, presented in International Conference in Corporate Governance: Trends and Challenges in the Millennium, 29-30 October, Istana Hotel, Kuala Lumpur, Malaysia.

Rediker, K. J. and Seth, A. (1995) Boards of directors and substitution effects of alternative governance mechanisms, *Strategic Management Journal*, 16, pp. 85–99.

Renders, A. and Gaeremynck, A. (2006) Corporate governance and performance: Controlling for sample selection bias and endogeneity, Working Paper, University of Maastricht, Available at SSRN:http://ssrn.com/abstract=888770.

Renneboog, L. (2004) Ownership, managerial control and the governance of companies listed on the Brussels stock exchange, *Journal of Banking & Finance*, 24, pp. 1959-1995.

Richardson, S., Tuna, I. and Wu, M. (2002) Predicting earnings management: The case of earnings restatements, Working Paper, University of Pennsylvania.

Richardson, V. (1998) Information asymmetry and earnings management: Some evidence, Working Paper, University of Kansas.

Ronen, J. and Sadan, S. (1981) Smoothing income numbers, objectives, means and implications, (Reading: Addison-Wesley Publishing Company).

Ronen, J. and Yaari, V. (2001) Incentives for voluntary disclosure, *Journal of Financial Markets*, 4, pp. 309-357.

Ronen, J. and Yaari, V. (2008) *Earnings management emerging insights in theory, practice and research.* Springer.

Roscoe, J. T. (1975) *Fundamental research statistics for the behavioural sciences* (2nd ed.) New York, Holt, Rinehart and Winston.

Roulstone, D. T. (2003) Analyst following and market liquidity, *Contemporary Accounting Research*, 20(3), pp. 551-578.

Roychowdhury, S.(2006) Earnings management through real activities manipulation, *Journal of Accounting and Economics*, 42, pp. 335–370.

Ruland, W., Tung, S. and George, N.E. (1990) Factors associated with the disclosure of managers forecasts, *The Accounting Review,* 65 (3), pp. 710–721.

Sankar, M. and Subramanyam, K. R. (2001) Reporting discretion and private information communication through earnings, *Journal of Accounting Research* 39(2), pp. 367-392.

Sant, R. and Cowan, A. (1994) Do dividends signal earnings?: The case of omitted dividends, *Journal of Banking and Finance*, 18, pp. 1113-33.

Schipper, K. (1989) Commentary on earnings management, *Accounting Horizons*, 3, pp. 91-102.

Schleicher, T., Hussainey, K. and Walker, M. (2007) Loss firms' annual report narrative and share price anticipation of earnings, *The British Accounting Review*, 39, pp. 153-171.

Schwenk, C. (1993) Management tenure and explanations for success and failure, *OMEGA International Journal of Management and Sciences*, 21(4), pp. 449-456.

Scott, W. R. (2003) *Financial Accounting Theory*, Third Edition (Upper Saddle River, NJ: Prentice Hall).

Seifert, B., Gonenc, H. and Wright, J. (2005) The international evidence on performance and equity ownership by insiders, blockholders and institutions, *Journal of Multinational Financial Management,* 15, pp. 171-191.

Sekaran, U. 2003. *Research methods for business: A skill building approach*. 4th edition. John Wiley & Sons, Inc.

Sengupta, P. (1998) Corporate disclosure quality and the cost of debt, *The Accounting Review,* 73(4), pp. 459-474.

Shaw, K. W. (2003) Corporate disclosure quality, earnings smoothing, and earnings' timeliness, *Journal of Business Research*, 56, pp.1043-1050.

Shen, C-H. and Chih, H-L. (2005) Investor protection, prospect theory, and earnings management: An international comparison of the banking industry, *Journal of Banking & Finance,* 29, pp. 2675-2697.

Shleifer, A. and Vishny, R. W. (1988) Value maximization and the acquisition process, *The Journal of Economic Perspectives,* 2(1), pp. 7-20.

Shleifer, A. and Vishny, R. W. (1997) A survey of corporate governance, *The Journal of Finance,* 52(2), pp. 737-783.

Simpson, A. (2010) Analysts' use of nonfinancial information disclosure, *Contemporary Accounting Research*, 27(1), pp. 249-288.

Singhvi, S. and Desai, H. B. (1971) An empirical analysis of the quality of corporate financial disclosure, *The Accounting Review*, 46(1), pp. 129–138.

Singleton-Green, B. (2010) The communication gap: why doesn't accounting research make a greater contribution to debates on accounting policy? *Accounting in Europe,* 7(2), pp. 129–145.

Siregar, S. V. and Utama, S. (2008) Type of earnings management and the effect of ownership structure, firm size and corporate governance practices: Evidence from Indonesia, *The International Journal of Accounting*, 43, pp. 1-27.

Skinner, D and Sloan, R. (1999) Earnings surprises, growth expectations and stock returns, Working Paper, University of Michigan.

Skinner, D. J. (2003) Should firms disclose everything to everybody? A discussion of ‘‘Open vs. closed conference calls: the determinants and effects of broadening access to disclosure”, *Journal of Accounting and Economics*, 34, pp. 181–187.

Skinner, D.J. (1993) The investment opportunity set and accounting procedure choice, *Journal of Accounting and Economics,* 16, pp. 407–445.

Solomon, J. 2007. *Corporate governance and accountability*. John Wiley & Sons Ltd.

Song, J. and Windram, B. (2000) Benchmarking audit committee effectiveness in the UK, Available at SSRN: http://ssrn.com/abstract=249865 or doi:10.2139/ssrn.249865.

Spence, M. (1973) Job market signalling, *Quarterly Journal of Economics*, 87(3), pp. 355-379.

Staden, V. C. and Hooks, J. (2007) A comprehensive comparison of corporate environmental reporting and responsiveness, *British Accounting Review*, 39(3), pp. 197-210.

Stein, M. T. (1998) Discussion of “Bias and accuracy of management earnings forecast: An evaluation of the impact of auditing”, *Contemporary Accounting Research,* 15(2), pp. 197-201.

Su, D. (2003) Stock price reactions to earnings announcements: Evidence from Chinese markets, *Review of Financial Economics,* 12, pp. 271–286.

Subrahmanyam, A. (2005) A cognitive theory of corporate disclosure, *Financial Management*, pp. 5-33.

Subramanyam, K. R. (1996) The pricing of discretionary accruals, *Journal of Accounting and Economics,* 22, pp. 249-281.

Suchman, M.C. (1995) Managing legitimacy: Strategic and institutional approaches, *Academy of Management Review,* 20(3), pp. 571–610.

Suh, Y.S. (1990) Communication and income smoothing through accounting method choice, *Management Science,* 36, pp. 704-723.

Tabachick, B. G and Fidell, L. S. (1989). *Multivariate Statistic.* USA: Harper Collins Publisher.

Tadesse, S. (2006) The economic value of regulated disclosure: Evidence from the banking sector, *Journal of Accounting and Public Policy*, 25(1), pp. 32-70.

Teoh, S. H., Welch, I. and Wong, T. J. (1998) Earnings management and the long-run market performance of initial public offerings, *The Journal of Finance*, 53(6), pp. 1935-1974.

Teoh, S., I. Welch, and T.J. Wong. (1998a) Earnings management and the underperformance of seasoned equity offerings, *Journal of Financial Economics* 50(1), pp. 63-99.

Teoh, S., I. Welch, and T.J. Wong. (1998b) Earnings management and the long-term market performance of initial public offerings, *Journal of Financial Economics* 53(6), pp. 1935-1974.

Thomas, J. and Hervé, S. (2008) Do accounting standards matter? An exploratory analysis of *earnings management* before and after *IFRS* adoption, *Journal of Accounting and Public Policy*, 27(6), Nov, pp. 480-494.

Thomsen, S., Pedersen, T. and Kvist, H. K. (2006) Blockholder ownership: Effects on firm value in market and control based governance systems, *Journal of Corporate Finance*, 12, pp. 246-269.

Tilling, M. V. and Tilt, C. A. (2010) The edge of legitimacy: Voluntary social and environmental reporting in Rothmans' 1956-1999 annual reports. *Accounting, Auditing & Accountability Journal,* 23(1), pp. 55-81.

Tilt, C. A. and Symes, C. F. (1999) Environmental disclosure by Australian mining companies; Environmental conscience or commercial reality?, *Accounting Forum*, 23(2), pp. 137-154.

Tribo, J. A., Berrone, P. and Surroca, J. (2007) Do the type and number of blockholders influence R&D investments? New evidence from Spain, *Corporate Governance: The International Review*, 15(5), pp. 828-842.

Trueman, B and Titman, S. (1988) An explanation for accounting income smoothing. *Journal of Accounting Research*, 26, Supplement, pp. 127-139.

Tsuji, C. (2011) Recent development of the agency theory and capital structure, *Economic and Finance Review*, 1(6), pp. 94-99.

Tzur, J. and Yaari, V. (1999) Microstructure of firms disclosure, *Review of Quantitative Finance and Accounting*, 13, pp. 367-391.

Vafeas, N. (2000) Board structure and the informativeness of earnings, *Journal of Accounting and Public Policy*, 19, pp. 139-160.

Van Tendeloo, B. and Vanstraelen, A. (2005) Earnings management under German GAAP versus IFRS, *European Accounting Review*, 14(1), pp. 155–180.

Velury, U. (2003) The association between auditor industry specialization and earnings management, *Research in Accounting Regulation*, 16, pp. 171-184.

Velury, U. and Jenkins, D. S. (2006) Institutional ownership and the quality of earnings, *Journal of Business Research*, 59, pp. 1043–1051.

Verrecchia, R. E. (1983) Discretionary disclosure, *Journal of Accounting and Economics*, 5, Dec, pp. 179-194.

Verrecchia, R.E. and Weber, J. (2006) Redacted disclosure, *Journal of Accounting Research*, 44, pp. 791–814.

Voordeckers, W., Steijvers, T. and Mercken, R. (2008) Multiple directorships in unlisted medium-sized firms, Working paper, KIZOK, Hasselt University.

Wahal, S. and McConnell, J. J. (2000) Do institutional investors exacerbate managerial myopia, *Journal of Corporate Finance*, 6, pp. 307-392.

Wallace, R. S. O. and Naser, K. (1995) Firm specific determinants of the comprehensiveness of mandatory disclosure in the corporate annual reports of firm listed on the stock exchange of Hong Kong, *Journal of Accounting and Public Policy*, 14 (4), pp. 311-368.

Wallace, R. S. O., Choudhury, M. S. I. and Adhikari, A. (1999) The comprehensiveness of cash flow reporting in the United Kingdom: Some characteristics and firm-specific determinants, *The International Journal of Accounting*, 34 (3), pp. 311-347.

Wallace, R.S.O., Naser, K. and Mora, A. (1994) The relationship between the comprehensiveness of corporate annual reports and firm characteristics in Spain, *Accounting and Business Research*, 25(97), pp. 41-53.

Walsh, J.P. and Seward, J.K. (1990) On the efficiency of internal and external corporate control mechanisms, *The Academy of Management Review*, 15(3), pp. 421–458.

Walther, B. R. (1997) Investor sophistication and market earnings expectations. *Journal of Accounting Research*, 35(2), pp. 157–79.

Wang, K., O, Sewon. and Claiborne, M. C. (2008) Determinants and consequences of voluntary disclosure in an emerging market: Evidence from China, *Journal of International Accounting, Auditing and Taxation,* 17, pp. 14-30.

Warfield, T., Wild, J. and Wild, K. (1995) Managerial ownership, accounting choices, and informativeness of earnings, *Journal of Accounting and Economics*, 20(1), pp. 61-91.

Watson, A., Shrives, P. and Marston, C. (2002). Voluntary disclosure of accounting ratios in the UK, *British Accounting Review,* 34, pp. 289-313.

Watts., R. L. and Zimmerman, J. L. (1986) Positive Accounting Theory, Prentice Hall.

Waymire, G. (1985) Earnings volatility and voluntary management forecast disclosure, *Journal of Accounting Research, Spring*, pp. 268-295.

Welch, I. 2000. Herding among security analysts, *Journal of Financial Market*, 58(3), December, pp. 369-396.

Welker, M. (1995) Disclosure policy, information asymmetry, and liquidity in equity markets, *Contemporary Accounting Research*, 11, Spring, pp. 801-827.

Whittred, G. P. and Zimmer, I. (1990) Financial accounting, incentive effects and economic consequences, Harcourt Brace Jovanovich.

Wiedman, C. (2000) Discussion of "Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock?", *Contemporary Accounting Research*, 17(4), pp. 663-669.

Williamson, D. and Lynch-Wood, G. (2008) Social and environmental reporting in UK company law and the issue of legitimacy, *Corporate Governance,* 8(2), pp. 128-140.

Wright, D. (1996) Evidence on the relation between corporate governance characteristics and the quality of financial reporting, Working Paper, Available at SSRN: http://ssrn.com/abstract=10138 or DOI: 10.2139/ssrn.10138.

Xie, B., Davidson, W. N., and DaDalt, P. J. (2003) Earnings management and corporate governance: The role of the board and the audit committee, *Journal of Corporate Finance*, 9, pp. 295–316.

Yermack, D. (1996) Higher market valuation of companies with a small board of directors *Journal of Financial Economics,* 40, pp. 185–211.

Young, S. (1999) Systematic measurement error in the estimation of discretionary accruals: An evaluation of alternative modelling procedures, *Journal of Business Finance and Accounting*, 26(7/8), pp. 833-862.

Yu, F. (2008) Analyst coverage and earnings management, *Journal of Financial Economics*, 88(2), pp. 245-271.

Yu, M. (2010) Analyst forecast properties, analyst following and governance disclosures: A global perspective, *Journal of International Accounting, Auditing and Taxation*, 19, pp. 1-15.

Zhang, Y., Zhou, J. and Zhou, N. (2007) Audit committee quality, auditor independence, and internal control weaknesses, *Journal of Accounting and Public Policy*, 26(3), pp. 300-327.

Zheng, X. (2008) An empirical analysis of the relationship between audit committee multiple directorships and financial reporting quality, Doctoral Thesis, Drexel University.

Zhou, J and Lobo, G. J. (2001) Disclosure quality and earnings management, *Asia-Pacific Journal of Accounting and Economics*, 8(1), pp. 1-20. Available at SSRN: http://ssrn.com/abstract=288724.

Zhu, F. (2009) Cost of capital and corporate governance: International evidence, Working Paper, University of Winconsin.

Appendices

Appendix 1: Analysis of Independent Variables and Residual for first project: Disclosure quality and earnings management (Annex to Chapter 3)

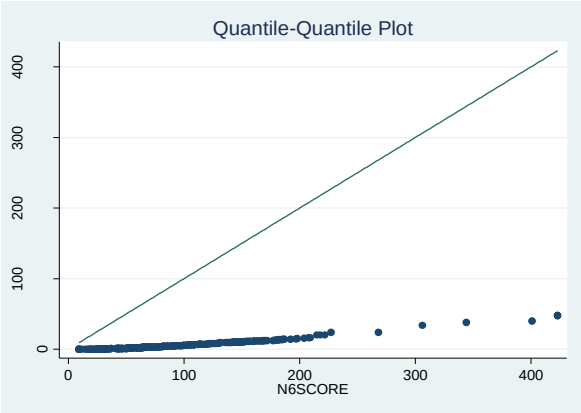
ANALYSIS OF INDEPENDENT VARIABLES

To ensure that the data is fit to the estimation used in this study, we performed several tests on the independent variables including linearity, normality, heteroskedasticity and multicollinearity.

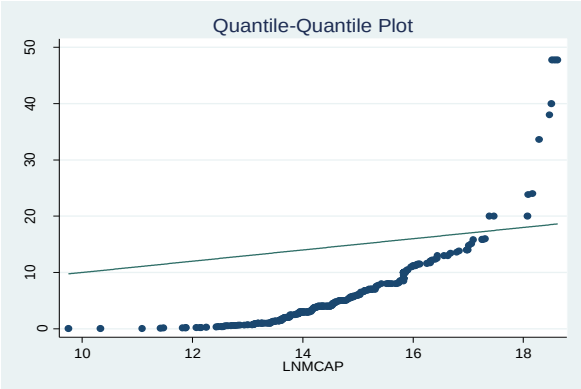
Linearity

This present study perform ***qqplot*** test to check for the linearity of the data. We found that our data indicates linear relationship. Few examples are shown below.

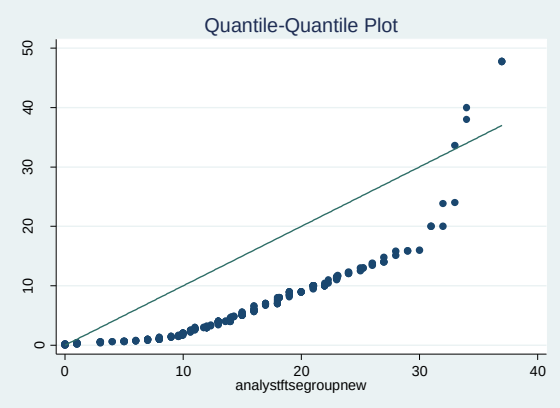
(a) qqplot between FLSCORE (horizontal) and MJONES (vertical)



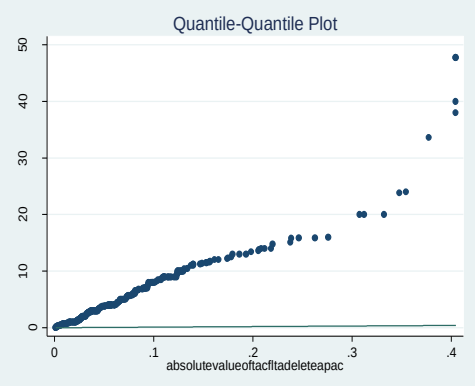
(b) qqplot between LMCAP (horizontal) and MJONES (vertical)



(c) qqplot between ANALYST (horizontal) and MJONES (vertical)



(d) qqplot between TACF/LTA (horizontal) and MJONES (vertical)



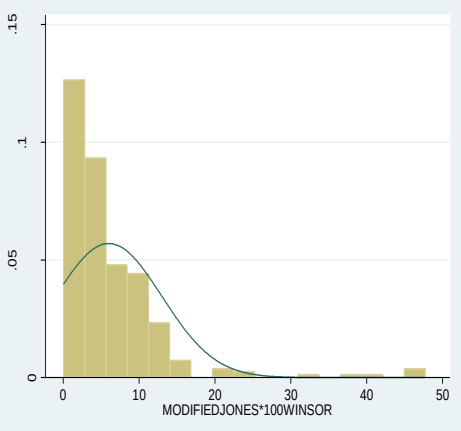
Normality

Several tests were performed including histogram (with normal curve), s-k test, Shapiro-wilk and Shapiro-francia. s-k test (skewness-kurtosis test) is similar to Kolmogrov Smirnov test although the latter is more suitable for large data (n>2000) (Park, 2008). We reported few examples below. We acknowledge that few data are skewed and not normally distributed, and we can spot the presence of outliers. This problem, however, is very common in the research on disclosure quality, earnings management and corporate governance. To alleviate this problem, we winsorised the top and bottom 1% of each continuous data similar to Cornett et al. (2008). We also transform market capitalisation data into natural logarithms. This step is expected to be able to mitigate the normality problem at certain extent.[151]

We also reported the skewness and kurtosis. The normal range of skewness and kurtosis is between -2 and +2. Overall, the results for skewness and kurtosis are quite sensible except just for few cases. As such, we rely on Tabachick and Fidell (1989) that the skewness and kurtosis problems are likely to be problematic to the standard error and it will bring no significant changes to the result. As a remedy to this problem, robust standard error will be applied in all models. In particular, we include "robust" at the end of the command to control for robust standard error in STATA program.

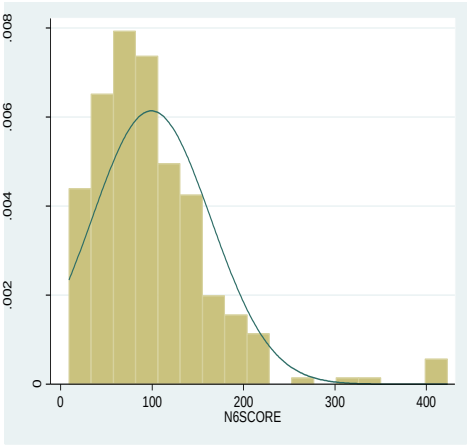
We also performed Shapiro-wilk, Shapiro-francia and S-K test to check for normality. We found that most the value of "w" in our Shapiro-Wilk results is close to 9, which indicates normality.

(a) Histogram with normal curve (MJONES variable)



[151] We also tried to rerun our primary regression models by deleting outliers, and we found that it did not alter our results.

(b) Histogram with normal curve (FLSCORE variable)



(c) Histogram with normal curve (AFA)

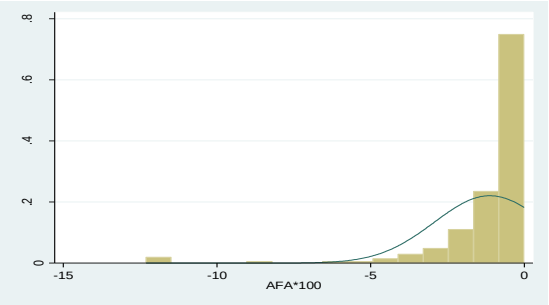


Table: Skewness and Kurtosis

VARIABLES	SKEWNESS	KURTOSIS
IRAWARD	0	1
FLSCORE	2.059	10.04
AFA	-4.149	23.85
MJONES (AV)[152]	3.346	18.16
JONES (AV)	2.844	13.539
PERFORM-ADJ (AV)	1.618	6.12
ACIND	-2.604	7.782

[152] AV refers to absolute value

ACSIZE	-4.21	18.76
ACMEET	-4.214	18.76
ACEXP	-2.8006	8.843
BODSIZE	0.208	1.043
BODMEET	0.166	1.028
BODIND	-1.941	4.769
ACIND[A]	-2.79	9.11
ACSIZE[A]	0.811	3.201
ACMEET[A]	2.63	11.69
ACEXP[A]	0.392	3.531
BODSIZE[A]	0.710	3.329
BODMEET[A]	1.307	6.129
BODIND[A]	0.098	2.56
LMCAP	0.274	3.49
ROA	0.323	6.456
LOSS	3.203	11.264
PPE/LTA	2.142	10.78
NCF/LTA	0.859	7.379
TACF/LTA (AV)	2.116	8.119
DTA	0.972	4.279
BIG4	-5.41	30.25
CHGE IN ROA	1.335	10.802
ANALYST	0.496	3.309
MARKET CAP	4.7918	27.165
BODIND[A]	0.113	2.594
D2007	1.208	2.461
D2006	1.25	2.57
D2005	1.165	2.358
TECH	2.143	5.591
IND	0.718	1.515
CGOOD	3.028	10.173
CSERV	1.102	2.215
HEALTH	4.399	20.355
UTILITI	4.837	24.403
LROA	0.848	7.17

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
n6score	290	0.0000	0.0000	.	0.0000
bodsize	290	0.0000	0.2179	18.81	0.0001
perbodindc~r	290	0.4857	0.0723	3.74	0.1543
bodmeet	290	0.0000	0.0000	61.00	0.0000
acsizeD	290	0.0000	0.0000	.	0.0000
acexpD	290	0.0000	0.0000	.	0.0000
acmeetD	290	0.0000	0.0000	.	0.0000
acindD	290	0.0000	0.0000	.	0.0000
loss1cv	290	0.0000	0.0000	.	0.0000
dta	290	0.0000	0.0015	35.37	0.0000
analyst	290	0.0008	0.2384	11.21	0.0037
TACF	290	0.0000	0.0000	.	0.0000
ncf	290	0.0000	0.0000	49.45	0.0000
ppe	290	0.0000	0.0000	.	0.0000
big4	290	0.0000	0.0000	.	0.0000
laggedroa	290	0.0000	0.0000	48.07	0.0000
lnmcap	290	0.0575	0.0993	6.19	0.0452
cheinsales~r	290	0.0000	0.0000	.	0.0000
dummy2007	290	0.0000	0.0156	41.99	0.0000
dummy2006	290	0.0000	0.0826	41.78	0.0000
dummy2005	290	0.0000	0.0015	43.22	0.0000
consumergo~s	290	0.0000	0.0000	.	0.0000
consumerse~s	290	0.0000	0.0000	47.67	0.0000
healthcare	290	0.0000	0.0000	.	0.0000
oilandgas	290	0.0000	0.0000	.	0.0000
utilities	290	0.0000	0.0000	.	0.0000
telecommun~n	290	0.0000	0.0000	.	0.0000
technology	290	0.0000	0.0000	.	0.0000

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
n6score	290	0.84334	32.389	8.150	0.00000
bodsize	290	0.96774	6.670	4.447	0.00000
perbodindc~r	290	0.99674	0.674	-0.925	0.82256
bodmeet	290	0.92317	15.884	6.481	0.00000
acsizeD	290	0.87480	25.885	7.625	0.00000
acexpD	290	0.94308	11.768	5.778	0.00000
acmeetD	290	0.87480	25.885	7.625	0.00000
acindD	290	0.95052	10.230	5.450	0.00000
loss1cv	290	0.92263	15.995	6.497	0.00000
dta	290	0.93520	13.396	6.081	0.00000
analyst	290	0.97998	4.140	3.329	0.00044
TACF	290	0.77846	45.802	8.962	0.00000
ncf	290	0.88168	24.461	7.492	0.00000
ppe	290	0.81259	38.745	8.570	0.00000
big4	290	0.79663	42.046	8.762	0.00000
laggedroa	290	0.90638	19.355	6.944	0.00000
lnmcap	290	0.98390	3.329	2.819	0.00241
cheinsales~r	290	0.28570	147.677	11.706	0.00000
dummy2007	290	0.98515	3.069	2.628	0.00429
dummy2006	290	0.98421	3.265	2.773	0.00278
dummy2005	290	0.98605	2.884	2.482	0.00653
consumergo~s	290	0.92956	14.563	6.277	0.00000
consumerse~s	290	0.98731	2.624	2.261	0.01187
healthcare	290	0.86953	26.973	7.721	0.00000
oilandgas	290	0.94534	11.302	5.683	0.00000
utilities	290	0.84798	31.429	8.080	0.00000
telecommun~n	290	0.99988	0.024	-8.754	1.00000
technology	290	0.96068	8.130	4.911	0.00000

.

Shapiro-Francia W' test for normal data

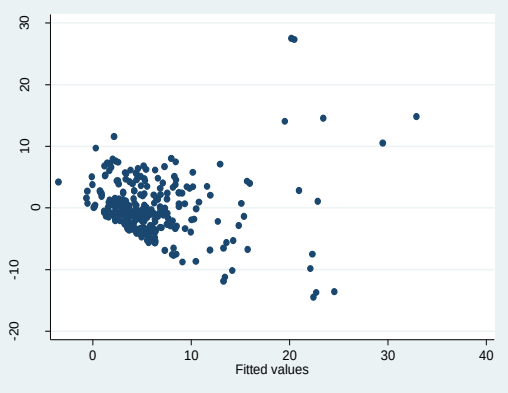
Variable	Obs	W'	V'	z	Prob>z
n6score	290	0.84093	35.652	7.570	0.00001
bodsize	290	0.97241	6.183	3.859	0.00006
perbodindc~r	290	0.99580	0.942	-0.127	0.55044
bodmeet	290	0.92438	16.948	5.995	0.00001
acsizeD	290	1.00000	0.000	-55.736	1.00000
acexpD	290	1.00000	0.000	-54.445	1.00000
acmeetD	290	1.00000	0.000	-55.736	1.00000
acindD	290	1.00000	0.000	-56.281	1.00000
loss1cv	290	1.00000	0.000	.	0.00001
dta	290	0.93567	14.419	5.652	0.00001
analyst	290	0.98287	3.839	2.850	0.00219
TACF	290	0.77959	49.399	8.261	0.00001
ncf	290	0.87833	27.270	7.002	0.00001
ppe	290	0.80985	42.617	7.948	0.00001
big4	290	1.00000	-0.000	.	0.00001
laggedroa	290	0.90349	21.631	6.511	0.00001
lnmcap	290	0.98351	3.696	2.769	0.00281
cheinsales~r	290	0.27921	161.549	10.770	0.00001
dummy2007	290	1.00000	-0.000	.	0.00001
dummy2006	290	1.00000	-0.000	.	0.00001
dummy2005	290	1.00000	0.000	.	0.00001
consumergo~s	290	1.00000	0.000	.	0.00001
consumerse~s	290	1.00000	0.000	.	0.00001
healthcare	290	1.00000	0.000	.	0.00001
oilandgas	290	1.00000	-0.000	.	0.00001
utilities	290	1.00000	0.000	.	0.00001
telecommun~n	290	1.00000	0.000	.	0.00001
technology	290	1.00000	-0.000	.	0.00001

.

Heteroskedasticity

We perform rvfplot as well as Breush pagan test and White test to check for heteroskedasticity. We found that the result from Breush pagan test and White test are contradicted each other. White test found that there is no heteroskedasticity problem while Breush pagan test indicated that there is a presence of heteroskedasticity. We assume that the heteroskedasticity is mild in our case. We corrected for heteroskedasticity using robust standard error.

Rvfplot between MJONES and FLSCORE



. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of mjones

chi2(1) = 320.07
Prob > chi2 = 0.0000

Multicollinearity

We checked for multicollinearity by manually observe the correlation coefficient for each independent variables. We found that none are more than 80%. We also check for the Variance Inflation Factor (VIF). The general rule is that the VIF must not more than 10 (Hair et al. 2008).

By using FLSCORE as a proxy for disclosure quality, we ran the OLS regression and we check the VIF. We found that the highest VIF is 2.91 (result reported below), which is belonging to the LMCAP. We conclude that this is acceptable given that we are not able to delete LMCAP from the model as to avoid model misspecification. Thus, to ensure that the model is well specified, we retain LMCAP in our model. We also tried to replace FLSCORE with AFA, and we re-ran the VIF test, we found that the maximum VIF is LMCAP = 3.46, with the mean VIF = 1.66 (full result not reported). This is still below the threshold of 10. When we employed IRAWARD as a proxy for disclosure quality, we found that the maximum VIF is LMCAP = 2.98, with the mean VIF =1.64 (full result not reported).

```
. estat vif
```

Variable	VIF	1/VIF
lnmcap	2.91	0.343864
analyst	2.50	0.400542
TACF	2.12	0.471943
bodsize	2.11	0.473034
ppe	1.87	0.534653
ncf	1.87	0.534965
consumerse~s	1.77	0.566536
n6score	1.71	0.585575
loss1cv	1.70	0.587056
dummy2006	1.68	0.596332
dummy2007	1.65	0.606165
technology	1.62	0.615454
dummy2005	1.60	0.623895
big4	1.58	0.634182
oilandgas	1.55	0.647191
cheinsales~r	1.50	0.667771
healthcare	1.46	0.685430
acsizeD	1.45	0.691484
telecommun~n	1.43	0.698040
laggedroa	1.37	0.730082
acmeetD	1.36	0.737547
acexpD	1.35	0.739290
perbodindc~r	1.33	0.752643
utilities	1.32	0.759200
acindD	1.32	0.759490
dta	1.29	0.777380
consumergo~s	1.27	0.786433
bodmeet	1.26	0.796792
Mean VIF	1.64	

We also tried to use condition index as another test for multicollinearity. However, we found that the results reported by condition index and VIF are contradict. The condition index reported that the condition number is 96, which is higher than the normal accepted level, that is 30. We note that multicollinearity detected in condition index is possibly due to the inclusion of year and industry dummies in the model. Wissmann et al. (2007, p. 10) stated that “dummy variables can cause multicollinearity problem”. Given that VIF is widely used as a measurement for multicollineaity, we assume that contradict results between VIF and condition index shown that multicollinearity is mild. As precaution, we tried to rerun the models with and without industry and year dummies. We found that our results (especially related to disclosure quality, earnings management and firm characteristics) are largely unaffected. Hence, we conclude that multicollinearity is not an issue in our case.

Collinearity Diagnostics

	Eigenval	Cond Index
1	15.9015	1.0000
2	1.6045	3.1481
3	1.3969	3.3740
4	1.1993	3.6413
5	1.0913	3.8172
6	1.0752	3.8457
7	1.0391	3.9119
8	0.9584	4.0732
9	0.8423	4.3450
10	0.7834	4.5053
11	0.7171	4.7089
12	0.6583	4.9149
13	0.4692	5.8213
14	0.3701	6.5549
15	0.3261	6.9832
16	0.2638	7.7634
17	0.2264	8.3813
18	0.1859	9.2488
19	0.1625	9.8911
20	0.1434	10.5308
21	0.1277	11.1584
22	0.1046	12.3287
23	0.0920	13.1477
24	0.0820	13.9234
25	0.0669	15.4219
26	0.0420	19.4501
27	0.0318	22.3709
28	0.0217	27.0723
29	0.0147	32.8551
30	0.0017	96.3347

Condition Number 96.3347
Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
Det(correlation matrix) 0.000

Outliers and missing data

As mentioned before, we winsorized all continuous variables at the top and bottom 1%, consistent with Cornett et al. (2009) to mitigate outliers issue. This study tends not to delete the outliers (to achieve normality) because it will reduce the number of sample, and the deletion of outliers will create new outliers. This study observes that the outliers in our data are genuine (in the sense that they are not affected by human error/ mistake during data key in or others). The outliers were randomly checked and it appears that they are correct and drawn from reliable sources. For example, the total accrual (TACF/LTA) for Avanti Screen Media is extremely high as compared to other firms in the sample. We rechecked/trace back the sources of the data from the annual report and they are the correct data. We traced back the data from the original source and we found that the data is correct. In this instance, we rely on Hair et al. (2008) that the deletion of outliers is not favourable unless if there is a strong justification based on researchers evaluation and judgement. As stated before, we winsorized all continuous data at the top and bottom 1% to avoid the effect of extreme value of outliers. Several missing data exist and we replace the missing data with the mean of the valid data of that particular variable (Hair et al., 2008). This missing data are random and we found it involved less than 10 cases.

Model Specification Test

Using Ramsey RESET test, we check the model specification. [153]We found that the p-value is 0.000, thus indicated that there is an omitted variables. Given that the number of independent variables used in the model is already high (28 variables) and the number of sample is 290, we decided not to add more variables in the model since we are concerned about the degree of freedom. The desirable ratio of independent variable to sample size is 1:15, although 1:10 is still acceptable, according to (Hair et al. 2008). Park (2008) notes that Ramsey RESET test is a weak, but popular test for omitted variables. We argue that the R^2 probably need to be very high (e.g. 90%) to ensure no omitted variables, which is nearly impossible in this type of research. Given that the R^2 in this present study is among the highest as compared to the literature in this area, we argue that different types of research subject to different diversity. It is very common to see high R^2 in researches on audit quality and corporate governance, which the R^2 is about 70%-80% (which probably indicates no omitted variables), but it is something weird in the disclosure quality research with majority of them reported R^2 within the range of 20%-40%. We controlled for governance variables (while past researched failed to account for this when they examining the link between DQ and EM), and included a comprehensive set of firms specific characteristics. To add more

[153] Ramsey RESET test was performed using ***ovtest*** command in STATA.

variables will reduce the degree of freedom and also may not feasible in terms of the data collection process *vis-a-vis* the timeframe of the study. Further analysis using linktest also performed. [154]

ovtest

Ramsey RESET test using powers of the fitted values of modifiedjones100winsor
Ho: model has no omitted variables
F(3, 258) = 13.01
Prob > F = 0.0000

. linktest

```
    Source |       SS       df       MS              Number of obs =     290
-------------+------------------------------           F(  2,   287) =  179.08
       Model |  7860.44603     2  3930.22301           Prob > F      =  0.0000
    Residual |  6298.5886   287  21.9463018           R-squared     =  0.5552
-------------+------------------------------           Adj R-squared =  0.5521
       Total |  14159.0346   289  48.9931994           Root MSE      =  4.6847

------------------------------------------------------------------------------
modifiedjo~r |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _hat |   .3149385   .1475097     2.14   0.034     .0246003    .6052766
     _hatsq |    .029692   .005936     5.00   0.000     .0180083    .0413757
      _cons |   2.296716   .6284803     3.65   0.000     1.059701    3.533732
------------------------------------------------------------------------------
```

Ovtest, rhs
Ramsey RESET test using powers of the independent variables
Ho: model has no omitted variables
F(31, 231) = 3.97
Prob > F = 0.0000

Regression Estimation

OLS Regression

We noted that most of prior research in earnings management (where the dependent variable is the absolute value of discretionary accruals) employed OLS estimation in their

[154] Linktest is performed using ***'linktest'*** command in STATA.

multivariate analysis (e.g. Peasnell et al. 2000). Although the nature of dependent variable is zero truncated, discussion with statistician[155] revealed that the types of data appropriate for OLS estimation are arbitrary. Hence it is not surprising to see that some study employed OLS regression. While compliance to the main assumptions in OLS is necessary, some research employed OLS estimation although their data are not normally distributed. Hence, we conclude that mild violations to OLS assumptions are normal in practice, specifically in the researches on disclosure quality, earnings management and corporate governance. Moreover, for the purpose of comparison, we believe that it is crucial for us to use the same estimation as in the majority of researches in this area. We therefore, employed OLS regression in our analyses. We pooled the data and we performed OLS regression to our model. [156]

Robust Regression

We also noted that robust regression is also suitable to be used as one of the alternative estimator. Robust regression, by it name is robust across outliers and the data is not comply with any specific assumptions in OLS regression. We performed robust regression in the sensitivity analysis. [157]

Tobit Regression and Truncated Regression

Given that the nature of dependent variable is truncated to zero, we noted that Myers et al. (2003) and Gul et al. (2009) employ truncated regression approach. Specifically, we performed Tobit regression and truncated regression. We performed Tobit regression and truncated regression in the sensitivity analysis. [158]

ANALYSIS OF RESIDUALS

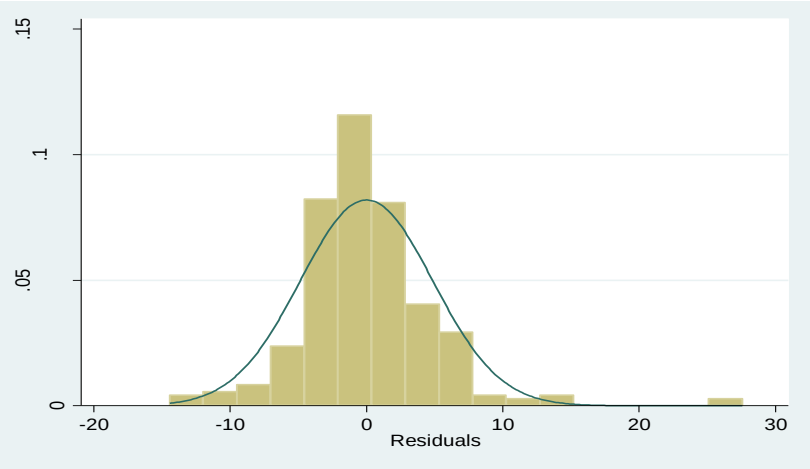
We also perform similar test to the residuals. We regress the model, and we obtain the residuals using ***predict ehat, resid*** command in STATA***.*** We draw the histogram with normal curve for residuals in STATA. We found that from graphical point of view, our residuals shown normally distributed result. We also calculate for the skewness and kurtosis, and we found that the skewness is 1.24 and the kurtosis is 9.77. The skewness is within the range of -2 and +2, which indicates normality, while kurtosis is slightly beyond the normal range.

[155] The statistician mentioned here is Prof. Christopher Baum, a leading STATA expert.

[156] We run OLS regression using following command in STATA *'regress dependent variable independent variables, robust'.*

[157] We used ***'rreg'*** command in STATA.

[158] We performed Tobit and truncated regressions using ***'tobit'*** and ***'truncreg'*** command in STATA with robust standard error.



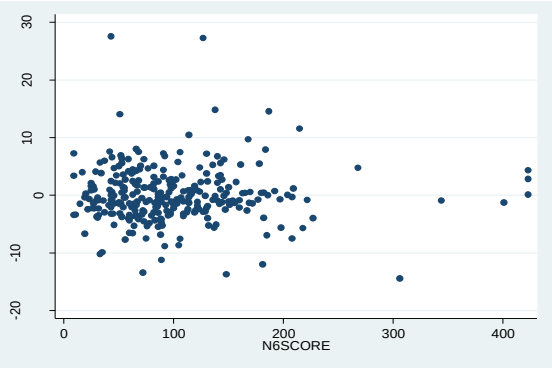

```
                         Residuals
-------------------------------------------------------------

      Percentiles      Smallest
 1%    -13.56835      -14.44539
 5%    -6.854295       -13.7292
10%    -4.791577      -13.56835       Obs                 290
25%    -2.633967      -11.94691       Sum of Wgt.         290

50%    -.6377428                      Mean           -7.66e-09
                        Largest       Std. Dev.      4.867732
75%     2.317975       14.54628
90%     5.544529       14.85012       Variance       23.69482
95%      7.20721       27.26777       Skewness       1.248064
99%     14.85012       27.55852       Kurtosis       9.770366

. sktest ehat

                    Skewness/Kurtosis tests for Normality
                                                      ------- joint ------
    Variable |   Obs   Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
-------------+------------------------------------------------------------
        ehat |   290      0.0000         0.0000            .          0.0000

. swilk ehat

                   Shapiro-Wilk W test for normal data

    Variable |   Obs       W           V         z       Prob>z
-------------+--------------------------------------------------
        ehat |   290    0.90881     18.853     6.882     0.00000

. sfrancia ehat

                  Shapiro-Francia W' test for normal data

    Variable |   Obs       W'          V'        z       Prob>z
-------------+--------------------------------------------------
        ehat |   290    0.90368     21.587     6.507     0.00001

.
```

The Shapiro-wilk and Shapiro-francia indicates that the residual is close to normal, given that the ***"w"*** is about 0.9. Nevertheless, the sktest reveal that the data is not normally

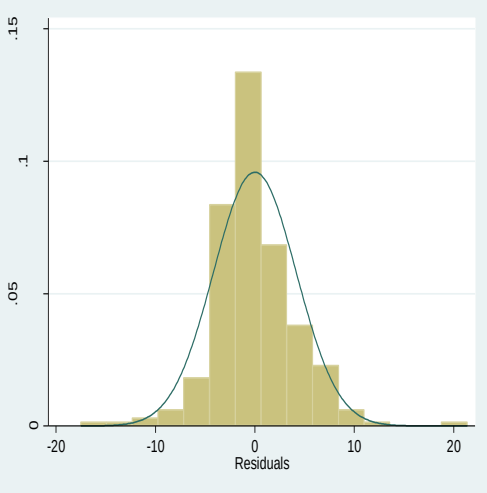
distributed. This present study assume that the residuals is close to normal given that there is contradict result between Shapiro-Wilk, Shapiro-Francia and sktest. The contradiction might happened because (i) the sktest is more strict test than Shapir-wilk and Shapiro-francia, which is normally be more meaningful when the data is large (e.g. more than 2000) given that it is similar to Kolmogrov-Smirnov test. Haniffa and Cooke (2002, p. 337) stated in the footnote that "if the error terms is normally distributed, the dependent variable will also be normally distributed". This study revealed that the residuals is very close to normal distribution, hence indicates that the dependent variables distribution are also close to normal, based on Haniffa and Cooke (2002) suggestion before.

This study also performed rvpplot between residuals and FLSCORE. The graph is tabulated as below. Given that the graph shown no clear pattern, this suggested that there is no relationship between error term and FLSCORE. If there is a relationship between any regressors and error terms, it implies that endogeneity exist. Note that random checking with other regressors also shown that the error term is not related to regressors.

rvpplot between FLSCORE and Residuals



This present study extends the test by substituting FLSCORE with AFA in the equation. The residual is then created after regress command. The histogram for residuals is as follow:




```
. summarize ehatafa, detail
```

Residuals

Percentiles		Smallest		
1%	-10.83097	-17.51723		
5%	-5.759082	-14.1566		
10%	-3.957629	-10.83097	Obs	254
25%	-2.360818	-10.194	Sum of Wgt.	254
50%	-.4068129		Mean	6.74e-09
		Largest	Std. Dev.	4.161266
75%	1.844063	9.908197		
90%	5.532596	10.04168	Variance	17.31613
95%	7.010758	12.16514	Skewness	.3871456
99%	10.04168	21.36615	Kurtosis	6.797795

```
. sktest ehatafa
```

Skewness/Kurtosis tests for Normality

				joint	
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
ehatafa	254	0.0122	0.0000	27.60	0.0000

```
. swilk ehatafa
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
ehatafa	254	0.94739	9.676	5.285	0.00000

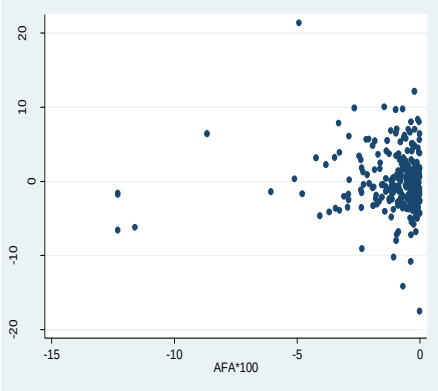
```
. sfrancia ehatafa
```

Shapiro-Francia W' test for normal data

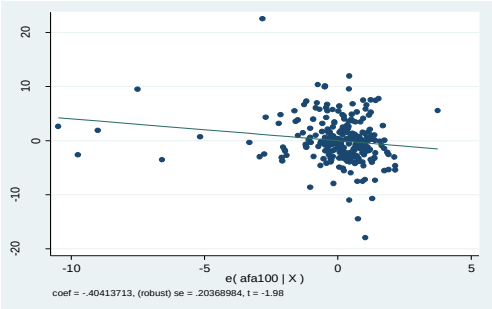
Variable	Obs	W'	V'	z	Prob>z
ehatafa	254	0.94081	11.830	5.188	0.00001

This study found that the residual is close to normal. The relationship between residuals and regressor is then examined using rvpplot. As below, the rvpplot is between residuals and the

test variable that is AFA. Based on the figure below, there is no specific pattern of relationship between residuals and AFA, thus indicates that no endogeneity between residuals and AFA.



The avplot is also performed to see the relationship between dependent variable and regressor. The x-axis is the regressor x "after controlling for its relationship with other regressor", while y-axis is the dependent variable "after controlling its relationship with remaining regressor" (Hill, n.d, p. 24). Command ***avplot X*** is used, where X is any regressor in the equation. As for below, command *avplot afa* is used. The ***avplot*** between MJONES and AFA shown that there is a negative relationship between these two variables.



Summary

We performed several test on independent variables including normality, linearity, heteroskedasticity and multicollinearity. We found that our variables are linear and suffered mild multicollinearity issue (due to contradict result from VIF and Collinearity index). We also found contradict results for heteroskedasticity test (Breush pagan and White test) and we mitigate this issue by using robust standard error. We also checked for normality, and we found that several data are not normally distributed. We winsorised the top and bottom 1% to control for extreme value and we transform market capitalisation data into natural

logarithms. At this point, we conclude that our data is satisfactory to fit with the OLS assumption. We also performed the same test to the residuals, and we found that residuals are substantially complying with the OLS assumption. We acknowledge that mild violation of OLS assumption exists, but this is not uncommon in the research on disclosure quality, corporate governance and earnings management. We decided to use OLS Regression as our main estimation, and we also use Tobit regression, truncated regression and robust regression as our additional test. [159]

[159] We found that our results are largely unaffected by the different estimation used.

Appendix 2: Analysis of Independent Variables and Residuals for second project: Corporate governance and disclosure quality (Annex to Chapter 5)

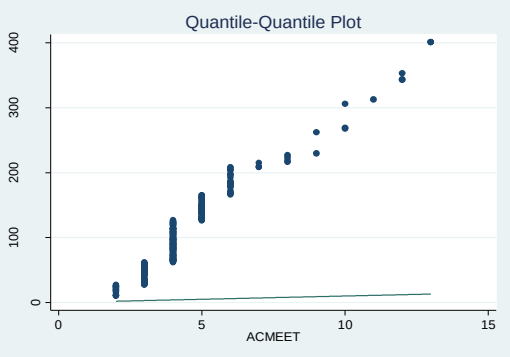
ANALYSES OF INDEPENDENT VARIABLES

Similar to appendix 4, we also performed several test on our independent variables based on the OLS assumptions that is linearity, normality, heteroskedasticity and multicollinearity.

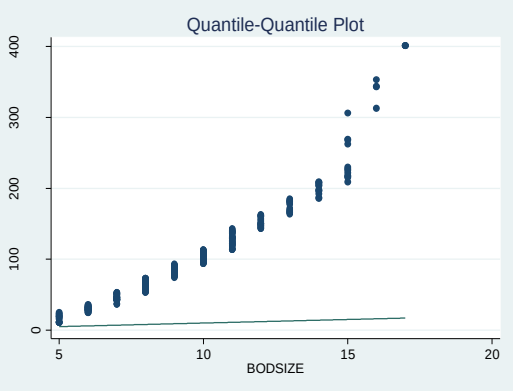
Linearity

We report some result for ***qqplot***, and we found linear relationship exist for almost all data.

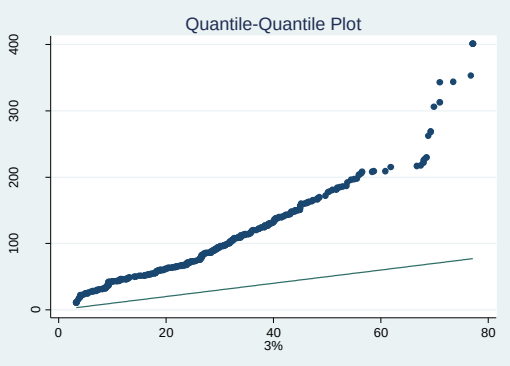
(a) Qqplot between ACMEET and FLSCORE



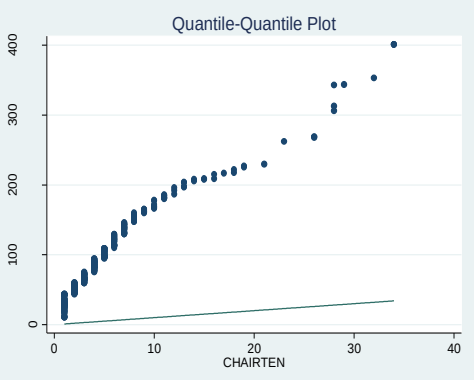
(b) Qqplot between BODSIZE and FLSCORE



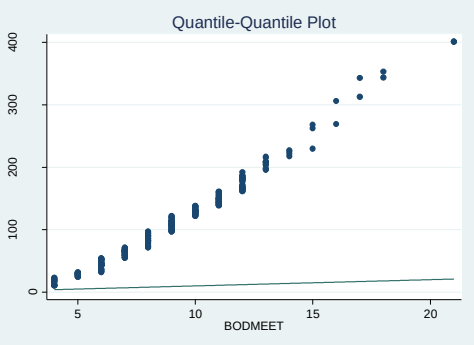
(c) Qqplot between 3%SUBSHR and FLSCORE



(d) Qqplot between CHAIRTEN and FLSCORE



(e) Qqplot between BODMEET and FLSCORE



Normality

Similar to the Appendix 2, we also create a histogram (with normal curve) to check the normality of our data. We found mixed results - some data are normally distributed and some are not. We extend our test using S-K test, Shapiro-wilk and Shapiro-francia tests. When we look at the Shapiro-wilk results, we found that most of our "w" value is close to 0.9, which indicates normality. Thus, as to ensure that the model fit with OLS estimation, we transform firm size (measured using market capitalization) into natural log as to transform the distribution to normal. Similar to Cornett et al. (2008), we winsorized all of the continuous data at top and bottom 1% to mitigate outliers effect.

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
bodsize	290	0.96774	6.670	4.447	0.00000
perbodindc~r	290	0.99674	0.674	-0.925	0.82256
bodmeet	290	0.92317	15.884	6.481	0.00000
acsizeD	290	0.87480	25.885	7.625	0.00000
acexpD	290	0.94308	11.768	5.778	0.00000
acmeetD	290	0.87480	25.885	7.625	0.00000
acindD	290	0.95052	10.230	5.450	0.00000
chairmult	290	0.97116	5.963	4.185	0.00001
chairnonex	290	0.96736	6.748	4.474	0.00000
chairten	290	0.72112	57.656	9.502	0.00000
subshr	290	0.97324	5.532	4.009	0.00003
nosubshre	290	0.98025	4.083	3.297	0.00049
roa	290	0.93349	13.751	6.143	0.00000
dta	290	0.93520	13.396	6.081	0.00000
big4	290	0.79663	42.046	8.762	0.00000
analyst	290	0.97998	4.140	3.329	0.00044
sdros	290	0.70232	61.545	9.655	0.00000
lnmcap	290	0.98390	3.329	2.819	0.00241
dummy2007	290	0.98515	3.069	2.628	0.00429
dummy2006	290	0.98421	3.265	2.773	0.00278
dummy2005	290	0.98605	2.884	2.482	0.00653
consumergo~s	290	0.92956	14.563	6.277	0.00000
consumerse~s	290	0.98731	2.624	2.261	0.01187
healthcare	290	0.86953	26.973	7.721	0.00000
oilandgas	290	0.94534	11.302	5.683	0.00000
utilities	290	0.84798	31.429	8.080	0.00000
telecommun~n	290	0.99988	0.024	-8.754	1.00000
technology	290	0.96068	8.130	4.911	0.00000

.

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
bodsize	290	0.0000	0.2179	18.81	0.0001
perbodindc~r	290	0.4857	0.0723	3.74	0.1543
bodmeet	290	0.0000	0.0000	61.00	0.0000
acsizeD	290	0.0000	0.0000	.	0.0000
acexpD	290	0.0000	0.0000	.	0.0000
acmeetD	290	0.0000	0.0000	.	0.0000
acindD	290	0.0000	0.0000	.	0.0000
chairmult	290	0.0000	0.2329	19.30	0.0001
chairnonex	290	0.0000	0.0000	.	0.0000
chairten	290	0.0000	0.0000	.	0.0000
subshr	290	0.0004	0.6512	11.28	0.0035
nosubshre	290	0.0006	0.7318	10.69	0.0048
roa	290	0.0246	0.0000	27.34	0.0000
dta	290	0.0000	0.0015	35.37	0.0000
big4	290	0.0000	0.0000	.	0.0000
analyst	290	0.0008	0.2384	11.21	0.0037
sdros	290	0.0000	0.0000	.	0.0000
lnmcap	290	0.0575	0.0993	6.19	0.0452
dummy2007	290	0.0000	0.0156	41.99	0.0000
dummy2006	290	0.0000	0.0826	41.78	0.0000
dummy2005	290	0.0000	0.0015	43.22	0.0000
consumergo~s	290	0.0000	0.0000	.	0.0000
consumerse~s	290	0.0000	0.0000	47.67	0.0000
healthcare	290	0.0000	0.0000	.	0.0000
oilandgas	290	0.0000	0.0000	.	0.0000
utilities	290	0.0000	0.0000	.	0.0000
telecommun~n	290	0.0000	0.0000	.	0.0000
technology	290	0.0000	0.0000	.	0.0000

.

Shapiro-Francia W' test for normal data

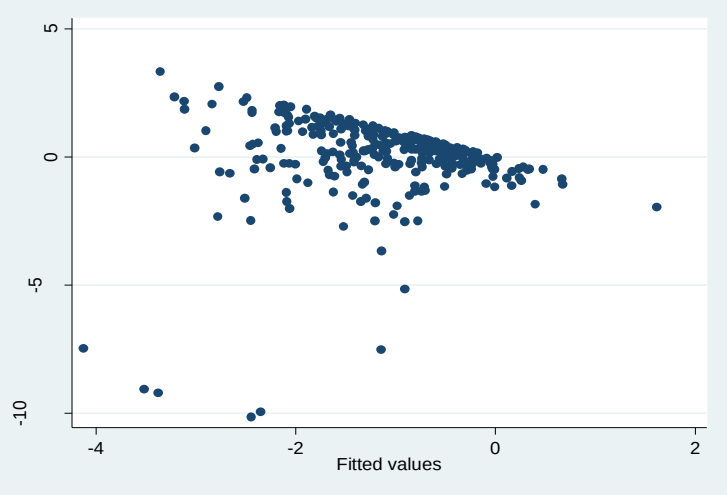
Variable	Obs	W'	V'	z	Prob>z
bodsize	290	0.97241	6.183	3.859	0.00006
perbodindc~r	290	0.99580	0.942	-0.127	0.55044
bodmeet	290	0.92438	16.948	5.995	0.00001
acsizeD	290	1.00000	0.000	-55.736	1.00000
acexpD	290	1.00000	0.000	-54.445	1.00000
acmeetD	290	1.00000	0.000	-55.736	1.00000
acindD	290	1.00000	0.000	-56.281	1.00000
chairmult	290	0.98373	3.646	2.740	0.00307
chairnonex	290	1.00000	0.000	-54.399	1.00000
chairten	290	0.73106	60.276	8.682	0.00001
subshr	290	0.97288	6.077	3.822	0.00007
nosubshre	290	0.98592	3.155	2.434	0.00748
roa	290	0.92913	15.884	5.857	0.00001
dta	290	0.93567	14.419	5.652	0.00001
big4	290	1.00000	-0.000	.	0.00001
analyst	290	0.98287	3.839	2.850	0.00219
sdros	290	0.72375	61.916	8.739	0.00001
lnmcap	290	0.98351	3.696	2.769	0.00281
dummy2007	290	1.00000	-0.000	.	0.00001
dummy2006	290	1.00000	-0.000	.	0.00001
dummy2005	290	1.00000	0.000	.	0.00001
consumergo~s	290	1.00000	0.000	.	0.00001
consumerse~s	290	1.00000	0.000	.	0.00001
healthcare	290	1.00000	0.000	.	0.00001
oilandgas	290	1.00000	-0.000	.	0.00001
utilities	290	1.00000	0.000	.	0.00001
telecommun~n	290	1.00000	0.000	.	0.00001
technology	290	1.00000	-0.000	.	0.00001

.

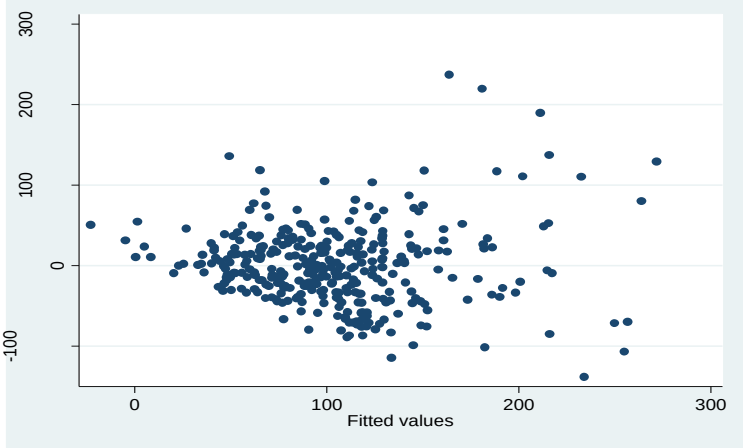
Heteroskedasticity

We create rvfplot to check for heteroskedasticity. We found that heteroskedasticity is present in our data.

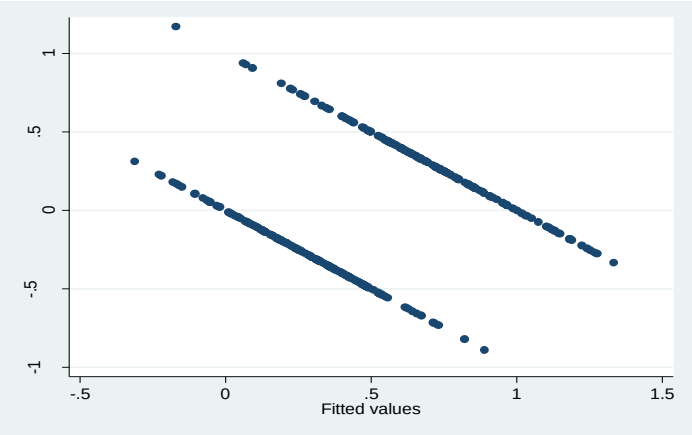
(a) rvfplot between AFA and Corporate governance variables (including control variables)



(b) rvfplot between FLSCORE and Corporate governance variables (including control variables)



(c) rvfplot between IRAWARD and Corporate governance variables (including control variables)



We perform other test for heteroskedsticity including Breush pagan test and White Test. We found that the result from Breush pagan test and White test is contradicted. Breush pagan test indicates heteroskedasticity (the p-value is significant), while White test reported no heteroskedasticity (the p-value is insignificant). We assume that mild heteroskedasticity exist. Heteroskedasticity will give an influence to the standard error per se, and not to the results. We corrected heteroskedasticity using robust standard error using 'robust' command in the STATA at the end of regression command (e.g., regress y x1 x2 x3, robust).

hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of afa100winsor

chi2(1) = 239.53
Prob > chi2 = 0.0000

. estat imtest

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	282.42	267	0.2471
Skewness	34.29	25	0.1019

Kurtosis	5.78	1	0.0162
Total	322.49	293	0.1137

Multicollinearity

We checked for multicollinearity by manually observe the correlation coefficient for each independent variables. We found that none are more than 70%. We also check for the Variance Inflation Factor (VIF), and we found that the maximum VIF is 2.85, which we considered as normal. Given that the largest VIF belong to firm size, we believe that exclusion of firm's size will increase model misspecification problem. The general rule is that the VIF must not more than 10 (Hair et al. 2008). When we employ FLSCORE as dependent variable, we found that the maximum VIF is 2.85, while the mean VIF is 1.55 (refer result below). When we used AFA (IRAWARD) as dependent variable, we found that the maximum VIF is belong to LMCAP with a value of 3.44 (2.85), and the mean VIF is 1.58 (1.55). We consider that multicollinearity is not a problem to our data.

We extend our multicollinearity test using Condition index. In this test, however, it indicates that multicollinearity is present due to the high value of condition number. As discussed before, this problem could occur due to high number of dummies in the model. We tried to exclude our dummies one by one from the regression, and we found that our results are qualitatively similar. We then assume that multicollinearity is basically mild and not detrimental to our findings.

```
. estat vif

    Variable |       VIF       1/VIF
-------------+----------------------
      lnmcap |      2.85    0.351175
     analyst |      2.57    0.389229
      subshr |      2.12    0.471495
     bodsize |      2.00    0.500484
consumerse~s |      1.91    0.523928
   nosubshre |      1.79    0.557669
   dummy2007 |      1.79    0.558802
   dummy2006 |      1.71    0.584178
   dummy2005 |      1.62    0.618738
  technology |      1.55    0.644064
     acsizeD |      1.48    0.677100
   oilandgas |      1.42    0.705087
        big4 |      1.40    0.716434
     acexpD |      1.39    0.718799
    chairten |      1.38    0.724800
     acmeetD |      1.35    0.740906
telecommun~n |      1.33    0.752049
  healthcare |      1.31    0.765306
         roa |      1.31    0.765663
      acindD |      1.29    0.773804
perbodindc~r |      1.29    0.774046
consumergo~s |      1.28    0.782836
  chairnonex |      1.27    0.788508
     bodmeet |      1.26    0.792972
   utilities |      1.24    0.805667
   chairmult |      1.24    0.806439
         dta |      1.21    0.823910
       sdros |      1.14    0.878849
-------------+----------------------
    Mean VIF |      1.55

.
```

Results for Condition Index

	Eigenval	Cond Index
1	17.8183	1.0000
2	1.1280	3.9744
3	1.1215	3.9859
4	1.0853	4.0518
5	1.0649	4.0905
6	1.0253	4.1688
7	1.0107	4.1987
8	0.9459	4.3402
9	0.9385	4.3573
10	0.6153	5.3814
11	0.5511	5.6862

12	0.3882	6.7752
13	0.3595	7.0403
14	0.3309	7.3384
15	0.2806	7.9685
16	0.2286	8.8283
17	0.1924	9.6232
18	0.1610	10.5211
19	0.1252	11.9295
20	0.1138	12.5120
21	0.1036	13.1148
22	0.0891	14.1427
23	0.0844	14.5313
24	0.0792	15.0000
25	0.0502	18.8356
26	0.0459	19.6954
27	0.0299	24.4063
28	0.0193	30.3861
29	0.0115	39.3266
30	0.0018	99.5436

Condition Number 99.5436
Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
Det(correlation matrix) 0.0018

Outliers and missing data

We treat outliers and missing data similar to the one discussed in Appendix 1.

Model Specification Test

Using Ramsey RESET test, we check the model specification. We found that the p value is 0.000, thus indicated that there is an omitted variables. Given that the number of independent variables used in the model is already high (28 variables) and the number of sample is 290, we decided not to add more variables in the model since we are concerned about the degree of freedom. We extend our analysis using linktest and we also found that the omitted variables exist.

ovtest

Ramsey RESET test using powers of the fitted values of afa100winsor

Ho: model has no omitted variables
F(3, 261) = 18.02
Prob > F = 0.0000

Further analysis using linktest also performed. Linktest is performed using ***'linktest'*** command in STATA.

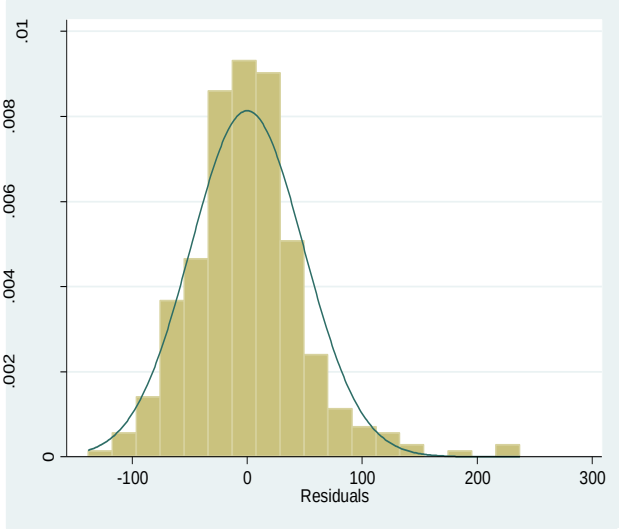
```
. linktest
    Source |       SS       df       MS              Number of obs =     294
-------------+------------------------------           F(  2,   291) =   55.17
     Model |  280.021698     2  140.010849            Prob > F      =  0.0000
   Residual |  738.441138   291  2.53759841            R-squared     =  0.2749
-------------+------------------------------           Adj R-squared =  0.2700
     Total |  1018.46284   293  3.47598238            Root MSE      =   1.593

------------------------------------------------------------------------------
afa100winsor |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _hat |  -.2610928   .2565721    -1.02   0.310    -.7660652    .2438795
     _hatsq |  -.4803158   .0880293    -5.46   0.000    -.6535706    -.307061
      _cons |  -.4810571   .1811915    -2.65   0.008    -.8376691   -.1244451
------------------------------------------------------------------------------
```

ANALYSIS OF RESIDUALS

The residuals for the dependent variables are generated in STATA using command ***predict ehat, resid*** after the ***regress*** function using **FLSCORE** as dependent variables. Then, several analyses of residuals were performed.

Normality of Residuals

```
. histogram  ehat, normal
(bin=18, start=-138.27893, width=20.855329)
```



The histogram above shown that the residual tabulation is normally distributed, although we can observe few outliers exist.

```
. summ ehat, d
```

Residuals

	Percentiles	Smallest		
1%	-101.4401	-138.2789		
5%	-74.07306	-114.6163		
10%	-58.87793	-106.9752	Obs	340
25%	-30.7614	-101.4401	Sum of Wgt.	340
50%	-2.33028		Mean	9.18e-09
		Largest	Std. Dev.	49.05214
75%	24.53749	137.1664		
90%	51.91164	189.759	Variance	2406.113
95%	78.61076	219.8472	Skewness	.8679866
99%	137.1664	237.117	Kurtosis	5.896318

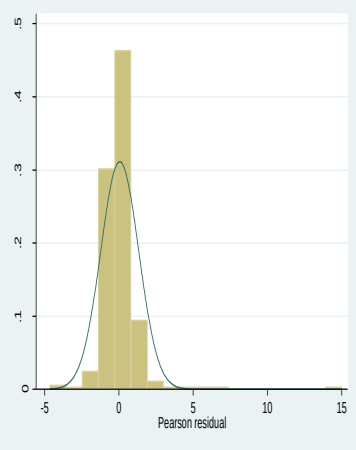
The descriptive statistics above shown that the skewness of the residuals is 0.867 and the kurtosis is 5.896.

```
. plot ehat  n6scorewinsor

 237.117 +
         |                                                                  *
         |                                                                  *
         |
         |                                                                  *
         |
    R    |
    e    |                              *                          *       *
    s    |                                 *   *      *     **    *
    i    |                         *     *    *                   *
    d    |                      * * *    * *  * *
    u    |   *    *  *  * *  **********    * *      **
    a    |   *     *** ***************  ** ***
    l    | ********************** * **
    s    | ********** *********  ***       *
         | **** *************    *  * *
         |   ********* * **   *
         | *   ***** *                **
         | **** **            *
         |  *   *     *          *
-138.279 +              *
          +------------------------------------------------------------------+
               11                  N6SCOREWINSOR                        401

. ksmirnov ehat = normprob(ehat)

One-sample Kolmogorov-Smirnov test against theoretical distribution
           normprob(ehat)

 Smaller group       D       P-value  Corrected
 ──────────────────────────────────────────────
 ehat:               0.4962    0.000
 Cumulative:        -0.4567    0.000
 Combined K-S:       0.4962    0.000      0.000
```

The kolmogrov smirnov test to check for normality shown that the combines K-S test p-value is 0.000, which is lower than $p<0.01$, thus indicates that the residuals is not normally distributed. However, it is important to note that kolmogrov smirnov is usually suitable for large data (i.e. more than 2000) according to Park (2008). Therefore, we also performed other normality tests as below.

```
. sktest ehat

                    Skewness/Kurtosis tests for Normality
                                                              ------- joint ------
    Variable |   Obs   Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)     Prob>chi2
-------------+-----------------------------------------------------------------
        ehat |   340       0.0000         0.0000        48.18          0.0000

. swilk ehat

                    Shapiro-Wilk W test for normal data

    Variable |   Obs       W           V          z       Prob>z
-------------+-------------------------------------------------
        ehat |   340    0.95698     10.243     5.494     0.00000

. sfrancia ehat

                  Shapiro-Francia W' test for normal data

    Variable |   Obs       W'          V'         z       Prob>z
-------------+-------------------------------------------------
        ehat |   340    0.95441     11.732     5.269     0.00001
```

In the Shapiro-wilk (***swilk)*** and Shapiro-francia (***sfrancia)*** test, the value for "w" is around 0.9, which indicates normality. It is important to note that it is a nature of accounting data not to have a perfect normality. We assume that our data is close to normal. When IRAWARD is used as a dependent variable, the same test was also performed. After ***logit*** command is used, the residuals is created using ***predict ehat, resid***. Following this, the normality distribution is checked.

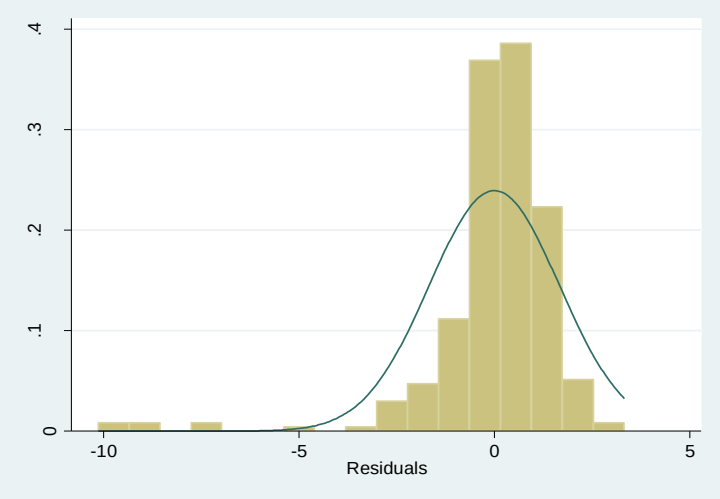


The descriptive statistics are performed. The Kurtosis is very high, thus indicates that the data is not normally distributed.

```
. summarize ehat, detail

                    Pearson residual
-------------------------------------------------------------
      Percentiles      Smallest
 1%    -2.221178      -4.648979
 5%    -1.157534       -3.69966
10%    -.8780436      -3.057152       Obs                 340
25%    -.4742087      -2.221178       Sum of Wgt.         340

50%    -.0110577                      Mean           .0562952
                        Largest       Std. Dev.      1.281508
75%     .4388369       4.195753
90%     .9453233       5.237091       Variance       1.642263
95%      1.32442       7.280182       Skewness       5.308549
99%     4.195753       15.01333       Kurtosis       60.49868

. sktest ehat

                    Skewness/Kurtosis tests for Normality
                                                      ------- joint ------
    Variable |   Obs   Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
-------------+------------------------------------------------------------
        ehat |   340      0.0000         0.0000            .         0.0000

. swilk ehat

                   Shapiro-Wilk W test for normal data

    Variable |   Obs       W           V          z       Prob>z
-------------+--------------------------------------------------
        ehat |   340    0.64358     84.867     10.487     0.00000

. sfrancia ehat

                  Shapiro-Francia W' test for normal data

    Variable |   Obs       W'          V'         z       Prob>z
-------------+--------------------------------------------------
        ehat |   340    0.63192     94.728      9.739     0.00001
```

Further analyses using ***sktest, swilk*** and ***sfrancia*** indicates that the residuals are not normally distributed. Values for "***w***" for Shapiro wilk and Shapiro francia is around 0.6, which is lower than 0.9.

Note that by using IRAWARD as dependent variable, the residuals are not normally distributed. However, it is important to note that IRAWARD is a dummy, hence such result is very normal. Therefore, the Logistic Regression using ***logit*** will be used when IRAWARD is employed as a proxy for disclosure quality. When AFA is used as a proxy for disclosure quality, the analysis of residuals was also performed. The histogram for the residuals is as below:




```
. summarize ehatafa, detail
```

Residuals

	Percentiles	Smallest		
1%	-9.209321	-10.14372		
5%	-2.249302	-9.950324		
10%	-1.328916	-9.209321	Obs	294
25%	-.3727265	-9.068247	Sum of Wgt.	294
50%	.2376373		Mean	-8.71e-11
		Largest	Std. Dev.	1.666769
75%	.8461489	2.325172		
90%	1.40201	2.345006	Variance	2.778119
95%	1.72741	2.752144	Skewness	-3.315331
99%	2.345006	3.328808	Kurtosis	18.8735

```
. sktest ehatafa

                    Skewness/Kurtosis tests for Normality
                                                              ------- joint ------
    Variable |   Obs   Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)     Prob>chi2
-------------+-------------------------------------------------------------------
     ehatafa |   294      0.0000         0.0000            .         0.0000

. swilk ehatafa

                    Shapiro-Wilk W test for normal data

    Variable |   Obs       W           V         z       Prob>z
-------------+--------------------------------------------------
     ehatafa |   294    0.70892     60.914     9.637    0.00000

. sfrancia ehatafa

                   Shapiro-Francia W' test for normal data

    Variable |   Obs       W'          V'        z       Prob>z
-------------+--------------------------------------------------
     ehatafa |   294    0.70437     67.051     8.916    0.00001

.
```

When AFA is used as dependent variables, the analyses such as ***sktest, swilk and sfrancia*** shown that the residuals are not normally distributed. Hence highlighting that the utilisation of OLS estimation is not suitable for this case. In this instance, this study employs Tobit regression when AFA is dependent variable, which is considered as semi-parametric test. In other words, the normality assumptions in the Tobit regression is not as strict as in OLS.

Regression Estimation

Tobit Regression and Truncated Regression

Given that the nature of analyst forecast accuracy data is truncated to zero, we noted that Myers et al. (2003) and Gul et al. (2009) employ truncated regression approach. Specifically, we performed Tobit regression and truncated regression, when analyst forecast accuracy (AFA) is used as dependent variable. We use 'Tobit' and 'truncreg' command in STATA with 'robust' to correct for heteroskedasticity in the standard error. [160]

Poisson Regression

Given that the data for forward looking information (FLSCORE) is a count data, as suggested by Cerbioni and Parbonetti (2007), the most suitable estimation is Poisson regression. We use 'poisson' command in STATA with robust standard error

[160] We also tried to transform AFA by ranked it according to its quantile and we perform Ordinal Logistic regression. To perform ordinal logistic regression, we used 'ologit' command with robust standard error.

Logistic regression

With regard to the IRAWARD, since it is measured using dummy (1,0) thus it is most appropriate to use Logistic regression. We pooled the data and we use 'logit' command in STATA to perform logistic regression.

Additional Estimations

Besides of using all of these estimations, we also employ a robustness check using OLS estimation and robust estimation and we found that the change in estimation basically did not alter our results.

Appendix 3 (Annex to Chapter 3)

List of IR Magazine Award

Grand Prix for Best Overall Investor Relations
Grand Prix for Best Investor Relations by a FTSE 250 company
Grand Prix for Best Smaller Company Investor Relations
Best investor relations officer at a FTSE 100 company
Best Investor Relations officer at a non-FTSE 100 company
Best Corporate Literature by a FTSE 100 company
Best Corporate Literature by a non-FTSE 100 company
Best Narrative Reporting
Best Use of the Internet for Investor Relations by a FTSE 100 Company
Best Use of the Internet for Investor Relations by a non-FTSE 100 Company
Best Use of Virtual Conferencing for Investor Relations
Best Results Meetings and Analyst Briefings
Best Communication of Shareholder Value Creation
Best Crisis Management
Best Investor Relations During a Takeover
Most Progress in Investor Relations by a FTSE 100 Company
Most Progress in Investor Relations by a non-FTSE 100 Company
Best Disclosure Practice
Best Corporate Governance
Best Practice of Corporate Social Responsibility
Best IR by a CEO at a FTSE 100 Company
Best IR by a CEO at a non-FTSE 100 Company
Best IR by a CFO at a FTSE 100 Company
Best IR by a CFO at a non-FTSE 100 Company
Best IR for a New Issue
Best IR by an AIM Company
Best North American IR in the UK Market
Best UK Company IR in the US market

The Sector Award

Aerospace & Defence
Banks/ Financial General
Chemicals
Construction & Materials
Food & Beverages/ Tobacco
Healthcare equipment & services/ Pharmaceuticals & biotech
House, leisure & personal goods
Industrial engineering/ industrial general/ automobiles & parts
Insurance
Media
Mining/ Basic Resource
Oil & Gas
Real Estate
Retailers
Support Services
Technology/ hardware
Technology- software & services/ electronic & electrical equipment
Telecommunications
Travel & leisure/ industrial transportation
Utilities

Appendix 4 (Annex to Chapter 3)

Forward Looking Keywords[161]

Key Words	
Accelerate	Look ahead, Look forward
Anticipate	Next
Await	Novel
Coming [financial] year[s]	Optimistic
Coming months	Outlook
Confidence, Confident	Planned, Planning
Convince	Predict
Current [financial] year	Prospect
Envisage	Remain
Estimate	Renew
Eventual	Scope for, Scope to
Expect	Shall
Forecast	Shortly
Forthcoming	Should
Hope	Soon
Intend, Intention	Will
Likely, Unlikely	Well placed, Well positioned
	Year[s] ahead
	2007/2008, 2007–2008
	2008, 2009, 2010 … 2017

Source: Hussainey et al. (2003, p. 277).

[161] Similar to Hussainey et al. (2003, p.277), '2007/2008' and '2007–2008' "refers to a firm's next financial year" and additional keywords like "'during', 'for', 'in', 'into', 'of', 'through' and 'throughout'" is alternately used along with the year '2008' to '2017. For the verbs like "accelerate" several additional keywords were employed including "accelerate, accelerates, is accelerated, are accelerated, is accelerating, and are accelerating". The year "2007/2008, …" and "2008, 2009…" in the list above are dissimilar to Hussainey et al. (2003) given that it changes is necessary to suit the year that used in the current dataset.

Appendix 5 (Annex to Chapter 3)

Validity test for forward looking score

	INDEX LIST
	A. GENERAL CORPORATE INFORMATION
1	Information on company history/ profile
2	Statement of company vision and mission
3	Explanation about main projects/ activities/ operation
	B. COMPANY STRATEGY
1	Firms general strategy/ goal/ objectives
2	Firms financial strategy/goal /objectives
3	Firms marketing strategy/goal/objectives
	C. CAPITAL MARKET DATA
1	Listing information/ name of Stock Exchanges
2	Information about share price
3	Home and overseas shareholdings
4	The types of shareholders and their shareholdings
5	Market capitalisation
	D. FINANCIAL RATIO
1	Leverage ratio
2	Profitability ratios
3	Liquidity ratios
4	Dividend per share
5	Earnings per share
	E. RESEARCH AND DEVELOPMENT
1	New product/ service invention/ development
2	Link between R&D cost and firms profitability/ performance
3	Explanation about the firms R&D projects
	F. FUTURE PROSPECTS
1	Explanation about future trend in industry
2	Qualitative forecast
3	Forecast assumptions
4	Budget forecast
5	Earnings forecast
6	Industry forecast/industry growth forecast
7	Growth in units sold (or growth in other output measure e.g. production)

8	Growth in investment (expansion plans, number of outlets, etc)
9	Forecasted market share/growth/trend
10	Sales forecast/future revenue growth
11	Profit forecast
	G. SOCIAL REPORTING
1	Firms sponsorships activities
2	Contribution to community and government
3	Information about child labour avoidance/elimination
4	Programs that manage the impacts of operations on communities
	H. ENVIRONMENTAL
1	Energy consumption
2	Information about recycled activities
3	Direct energy consumption
4	Indirect energy consumption
5	Information about energy saving
6	Initiatives for energy-efficient or renewable energy
7	Initiatives to reduce energy consumption
8	Total water withdrawals
9	Water recycled and reused
10	Biodiversity area
11	Initiatives to manage impact on biodiversity
12	Total greenhouse gas emissions
13	Initiatives to reduce greenhouse gas
14	Quality of water discharge
15	Waste management/ disposal method
16	Initiatives to mitigate environmental impact
17	Percentage of product sold and their packaging materials that are reclaimed
18	Info on sanction and non sanctions with environmental laws and regulations
19	Initiatives to reduce water waste
20	How to reduce water usage
21	Environmental policies
22	Environmental protection information/expenses
23	Information about climate change
24	Environmental pollution
25	Information on sustainability
	I. EMPLOYEE INFORMATION
1	Employees appreciation
2	Number of employees
3	Breakdown of employees by line of business
4	Breakdown of employees by level of qualification/exec vs. non-execs
5	Breakdown of employees by ethnic origin
6	Breakdown of employees per category according to gender, age group
7	Training on ethics, values for employees
8	Total workforce by employee type, employment contract and region

9	Total number and rate of employee turnover by age group, gender and region
10	Accident rate (rates of injury, occupational diseases, lost days and absenteeism, fatalities by region)
11	Training and counselling, prevention and risk-control program for employees, their families or community members
12	Health and safety topic covered in formal agreements
13	Training per year per employee by employee category
14	Programs for training/skills management and lifelong learning
15	Employees receiving regular performance and career development reviews
16	Disable employee 1
17	Employee involvement
18	Employee communication
19	Action/training in reducing corruption/bribery/ethics
20	Employee equality/ opportunity/ discrimination policy
	J. PRODUCTS OR SERVICE INFORMATION
1	Discussion of major types of products/ services/ projects
2	Improvement/information about product quality
3	Improvement in customer service
4	Distribution of marketing network for finished products
5	Presentation of new products/services
6	Time to market of new products/strategies (forecast)
7	Information about product/service safety
8	Potential products/services
	L. SUPPLIER INFORMATION
1	Information on supplier
2	Audit on supplier
3	Supplier plan/ program
4	Spend/info on local supplier
	L. OTHERS
1	Information of fines (non-fines) or sanctions (non-sanctions) for noncompliance (compliance) with laws and regulations/
2	Information about company's website
3	Investors/ shareholders information
4	Information on Key Performance Indicator (KPI)
5	Information about supply chain
6	Analysis of shareholdings
7	Awards and media ratings
8	Information on additional report (e.g. CSR, sustainability report)
9	Information about consumer demand
10	Information on cost savings

Appendix 6 (Annex to chapter 3)

Validity test of FLSCORE by randomly reading 30 forward looking sentences produced by N6 Software

Keywords of Forward Looking Score	**Score**
Await	30/30
Coming financial year	30/30
Coming months	30/30
Convince	30/30
Current financial year	30/30
Envisage	24/30
Forthcoming	30/30
Novel	26/30
Optimistic	30/30
Outlook	26/30
Eventual	30/30
Look ahead/ Look forward	30/30
Planned/ Planning	28/30
Prospect	29/30
Scope for/ scope to	30/30
Shortly	29/30
Year(s) ahead	29/30
During, for, in, into, of, through and throughout (used in conjunction with Years)	30/30

Appendix 7

Control variables not included in the analyses

(1) International Financial Reporting Standard (IFRS)

The IFRS has been introduced to the UK firms in 2005. Given that the period of observations in this study is from the year 2004-2007, therefore it is difficult to drastically measure the impact of IFRS to earnings management or disclosure quality since it is still at infancy and/or transition stage. Moreover, some literature to date has been proved that IFRS is not significant in reducing earnings management (e.g. Thomas and Hervé, 2008; Van Tendeloo and Vanstraelen, 2005). A comparative seminal work by Thomas and Hervé, (2008) who using UK, Australia and France data reported that that the IFRS adoption has no impact to the magnitude of earnings management. Another European studies by Van Tendeloo and Vanstraelen (2005), who concentrated on 636 firms in Germany's capital market highlighted that the firms with IFRS have no significant different with the firms using German GAAP when earnings management is concern. Moreover, using UK data for the year 2003-2006 Habbash (2010) found that there is no significant relationship between IFRS and earnings management.

(2) The changes in Operating and Financial Review (OFR) and Business Review (BR)

Williamson and Lynch-Wood (2008) argue that the OFR is basically voluntary in nature since the information released by the firms pertaining to OFR is subject to managers discretions. The OFR and BR controversy in the UK legislation happened during the year 2004-2007 consecutively, therefore it is argue that all years (used in this present study) are homogenous in nature.

(3) Disclosure Frequency

Jo and Kim (2007) found that disclosure frequency is capable in reducing earnings management. This present study exclude disclosure frequency as one of the control variables since it has incorporated the number of analyst following which proxy for the firm's publicly available information in the market as one of the control variables in the regression analysis. Moreover, Gu and Li (2007) suggest the number of analyst following represent the extent of firm's information asymmetry.